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Report of the Committee on Aptitude Tests for Medical Students*

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During the past year the work of our Committee has consisted of: first, administration of Forms 5 of the test to the 1933 applicants with the report of their ratings on the test to the medical schools; second, continued study of the predictive value of the test on experimental groups tested in the medical schools and also on groups tested in the premedical colleges during the past two years; third, special studies made with the object of improving the nature of the aptitude test so that we will have a better instrument for picking out those with ability to complete successfully the medical school course. This last part of our work has involved a detailed study of all the cases of discrepancy between test scores and medical school work of students admitted during one year which we selected for study. We hope that such studies as these will enable us to improve the test and its administration.

In presenting this report of our work I again emphasize that the aptitude test, even were it perfected to the highest possible degree, can be only one criterion for selecting medical students. To predict success in the medical school is to predict very complicated human behavior, and this behavior is determined by many variables—variables of ability, of training, of economic status, of emotional traits, of personality, etc.—some of which can and some of which cannot be measured at the present time. An aptitude test can contribute to the measurement of only a portion of these variables; but if this portion is otherwise not measured, and if by its measurement the total prediction is improved, then the test should be of value in the selection of medical students.

THE TEST OF DECEMBER 9, 1932

On December 9, 1932, our Committee carried out a program of administering the aptitude test to students expecting to apply for entrance to

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the medical schools in 1933. The form of the test used, as outlined in the report of our Committee at this time last year, included seven parts: (1) Comprehension and Retention; (2) Visual Memory; (3) Memory for Content; (4) Logical Reasoning; (5) Scientific Vocabulary; (6) Ability to Follow Directions; (7) Understanding of Printed Material.

Using this test the past year, 9,398 students were tested in 546 colleges. The total scores made ranged from 32 to 269 out of a total possible of 275. The highest quarter made above 215 and the lowest quarter below 151. A report of the results of this testing was sent to the deans of the medical schools in February, 1933. The report included a record for each student of his scores on the seven parts, his total score, and a percentile rating indicating his standing in the whole group tested. The report also included a discussion of the various factors involved in interpreting the test ratings.

Last month our committee investigated, by questionnaires to the deans, the use that is being made of the aptitude test results. The questionnaire

TABLE 1.—USE OF THE APTITUDE TEST RESULTS BY VARIOUS SCHOOLS.

Require that all applicants, except when specifically excused, take the test	44%
Make use of the results on those tested, but do not require the test of all applicants	42%
Make use of the test results only in exceptional or doubtful cases	7%
Do not make any use of test results	7%

itself allowed for an expression of extent of use under four designations. These with the percentage stating each extent of use are indicated in Table 1.

The results of the questionnaire seem to justify the efforts put forth by the committee and all those concerned in the administration of these tests. They also seem to justify any efforts that can be made to obtain a universal testing of all students who are applying for entrance. More than 90 per cent of the schools make use of the test results; and whether the use is made in the case of all students or only in the case of doubtful ones, an available test record on each applicant would make the results of most value.

STUDIES FOR IMPROVEMENT OF THE TEST

Within a few weeks from the time this report is made, the sixth form of the medical aptitude test will be administered to students who expect to apply for entrance to medical schools in 1934.

A considerable amount of the work of our Committee during the past few months has consisted of a detailed study of the separate parts of the aptitude test as we have used it in the past. All of these various parts have been studied carefully in an effort to discover whether some of the parts are better than others, and whether some parts are so poor in predictive

value that it would be desirable to drop them out of the total test and substitute new parts or simply use those parts remaining. All the separate parts inculded in past examintions have been studied with the exception of the logical reasoning test of last year's form. This, we have not had an opportunity to study in the same manner, since the students taking it have only been admitted to medical school this fall. The problem of rela-

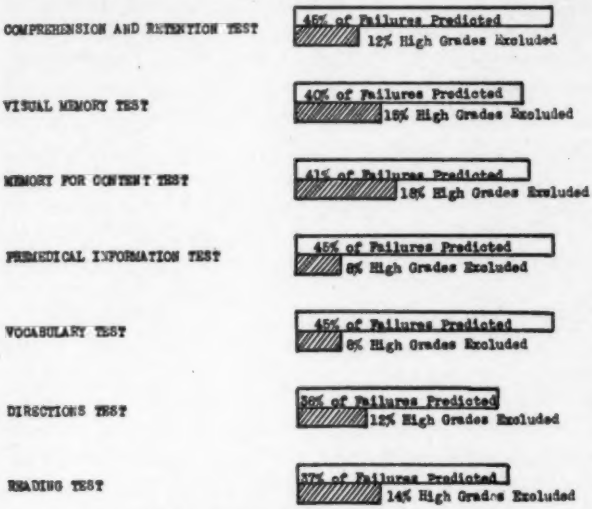


Fig. 1. Failures Predicted by Seven Parts of the Medical Aptitude Tests.

tive values of the separate parts we have attacked in several ways—statistically, by studying the relationship of each separate part to the medical school grades; by studying the interrelationship of the various parts; and by studying the value of the separate questions or items making up each part.

1. *Relationship to Medical School Grades.*—Undoubtedly, the best criterion of desirability of a part of the aptitude test is its relationship to the grades made in the medical school by those who take the test. Using the statistical measure of correlation coefficient, we have studied these relationships for the separate parts of the test on two groups—the experimental group graduating last June, tested by Form 2 in 1930; and the group admitted in the fall of 1932, tested in 1931 in the premedical schools. The relative values of the different parts of the test, as indicated by this study and also by the two other methods of study to be described, are indicated in Table 2. It will be noted from the table presented that the learning

tests included in the examination show the highest correlation with grades. These tests probably come nearest to measuring the natural ability of the student to comprehend and retain what he reads, an ability which is, without question, closely related to his ability to succeed in the medical school.

It might also be interesting to express these results in terms of percentages of failures predicted and percentage of good people that would be excluded by the various parts, were we to set critical points that would exclude the lowest quarter on each part. Such are indicated in Figure 1.

2. *Interrelationship of the Various Parts of the Tests.*—Another thing to which we have given attention in considering the separate parts of the aptitude test is the relationships among the various parts themselves. In

TABLE 2.—RELATIVE ORDER OF PARTS OF THE TEST ON THE BASIS OF THREE METHODS OF EVALUATION

Correlation with Medical School Grades	Intercorrelations	Selection Value of Separate Questions
Comprehension and Retention Test	Picture Learning Test	Vocabulary Test
Picture Learning Test	Reading Test	Comprehension and Retention Test
Vocabulary Test	Comprehension and Retention Test	Picture Learning Test
Premedical Information Test	Premedical Information Test	Premedical Information Test
Reading Test	Vocabulary Test	Reading Test
Directions Test	Directions Test	Directions Test

general, it would be desirable, if we have seven parts, that all the seven parts measure a different aspect of ability. It would be most undesirable, or at least useless, to include two parts that measure the same thing or two parts that have a very high correlation with each other. We have studied these interrelationships in terms of correlations between the various parts on the same groups of students mentioned. None of the parts we have used show a very high relationship to the other parts, but there are distinct differences between the best parts and the worst parts. The picture tests are least related to other parts, or, in other words, they measure qualities least indicated by other parts, and from this standpoint would be most desirable to retain in the whole test, provided, of course, that they are desirable parts otherwise.

3. *Selective Value of Separate Questions in the Various Parts.*—Another method which we have used in approaching the problem of relative value of the different parts of the test is that of studying the separate questions or items in respect to their ability to pick out the good students as compared with the poor ones. A separate question on a test is valuable for our purpose if the wrong answers to this question are given by the persons who do poor work in the medical school and the correct answers by those who do good work. This can be studied by dividing the students into four groups on the basis of their medical school work—into a highest

quarter, a second quarter, a third quarter and a lowest quarter—then tabulating from their test papers the errors on the separate questions. The ratio of wrong answers in the lowest quarters to wrong answers in the highest quarter gives us a "selective value" for each question. In general, the results of such a study agree with the results in terms of total relationship of a part to medical school work. However, this method gives an additional insight into the nature of individual questions making up the test; and in the last analysis it is always through improvement of the individual questions that the total test is improved.

Thus, it would appear that the Directions Test is least satisfactory on all three criteria. For that reason it is being eliminated in this year's form.

FURTHER STUDY OF EXPERIMENTAL GROUPS TESTED IN MEDICAL SCHOOLS FOUR AND FIVE YEARS AGO

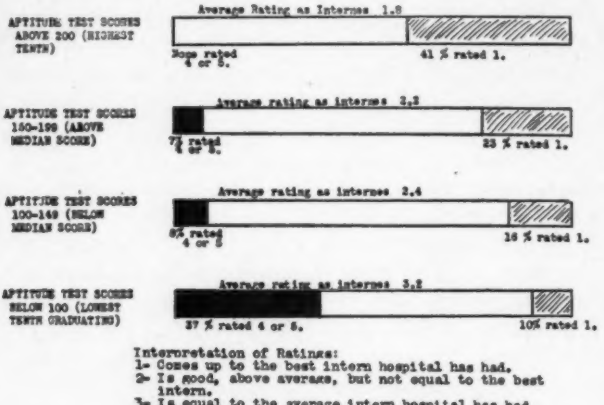
1. *Graduates of June, 1932.*—Five years ago, when they were freshmen, we tested 1,000 students in fourteen medical schools. Last year we presented results on these students for four years of medical school work. Since that time we have obtained records of internships held by these students during the past year. We have investigated the efficiency of the internships of these students in forty-eight hospitals (selecting the forty-eight in which there were three or more of these students). Each student was rated on his intern work by the superintendent or physician of the hospital in charge of interns. The ratings were made on a scale of 1 to 5 —"1" being a high rating and "5" a low rating. The interpretations of these ratings as given to the rater are as follows:

"1"—comes up to the best intern hospital has had.
"2"—is good, above average, but not equal to the best intern.
"3"—is equal to the average intern hospital has had.
"4"—is below the average intern, but better than the poorest hospital has had.
"5"—is among the poorest interns hospital has had.

The relation between the aptitude test scores and the ratings as interns is shown in Figure 2.

2. *Graduates of June, 1933.*—In the school year 1929-1930, the tests were given to approximately 5,000 freshmen medical students. The students tested have been used as an experimental group in studying the selective value of the aptitude test. At this time these students can be followed through the total four years of medical school work, those who completed the work having graduated in June, 1933. In Figure 3, we present the medical school attainments for the four years for these students divided into ten equal groups on the basis of their scores on the Aptitude Test. Each bar shows the percentage of failures occurring in the four years and the average grades of the group.

It is of considerable interest to compare the highest tenth of test scores at the end of four years with the lowest tenth. In the highest tenth no man has failed, and the whole group shows an average medical school grade for four years of 86.0. In the lowest tenth, by the end of four years, 54 per cent have failed, and the total group shows a medical school average of only 71.4. Based on the attainments in these two groups, we might


APTITUDE TEST SCORES ABOVE 200 (HIGHEST TENTH)
Average Rating as Interns 1.8
None rated 4 or 5.
41 % rated 1.
APTITUDE TEST SCORES 150-199 (ABOVE MEDIAN SCORE)
Average rating as interns 2.3
7% rated 4 or 5.
23 % rated 1.
APTITUDE TEST SCORES 100-149 (BELOW MEDIAN SCORE)
Average rating as interns 2.4
8% rated 4 or 5
16 % rated 1.
APTITUDE TEST SCORES BELOW 100 (LOWEST TENTH GRADUATING)
Average rating as interns 3.2
37 % rated 4 or 5.
10% rated 1.

Interpretation of Ratings:
1- Comes up to the best intern hospital has had.
2- Is good, above average, but not equal to the best intern.
3- Is equal to the average intern hospital has had.
4- Is below the average intern, but better than the poorest hospital has had.
5- Is among the poorest interns hospital has had.

Fig. 2. Relationship Between Aptitude Test Scores and Ratings as Interns (graduates, June, 1932).

say that if a student has a score in the upper tenth tested, the chances are 100 per cent that he will graduate; the chances are three to one that he will have an average of 85 or over; and there is a chance of one in ten that he will have an average of 90 or over (an average attained by about two of 100 medical students in general). On the other hand, if a student is as low as the lowest tenth tested, the chances are fifty-four out of a hundred that he will not be able to graduate; the chances are nine to one that he will have an average below 85; and the chances are 100 per cent that he will have an average below 90. The results presented on this group, which includes approximately 5,000 students followed through four years of work, agree, essentially, with the results of a similar study presented last year for students in fourteen schools who completed four years of work in June, 1932. Such a study on this larger group may demonstrate our findings to be more conclusive. It may also demonstrate the feasibility of constructing successive forms of the aptitude test which will predict as well as did the original form.

PREDICTION OF GRADES BY TEST FOR THOSE TESTED IN THE PREMEDICAL COLLEGES

The results on the group of 5,000 students just presented are for a group tested experimentally after they entered the medical school. There was, of course, in their case no factor of selection on the basis of an aptitude test. They were selected purely on the basis of criteria which have generally been used for the past several years in selecting medical students.

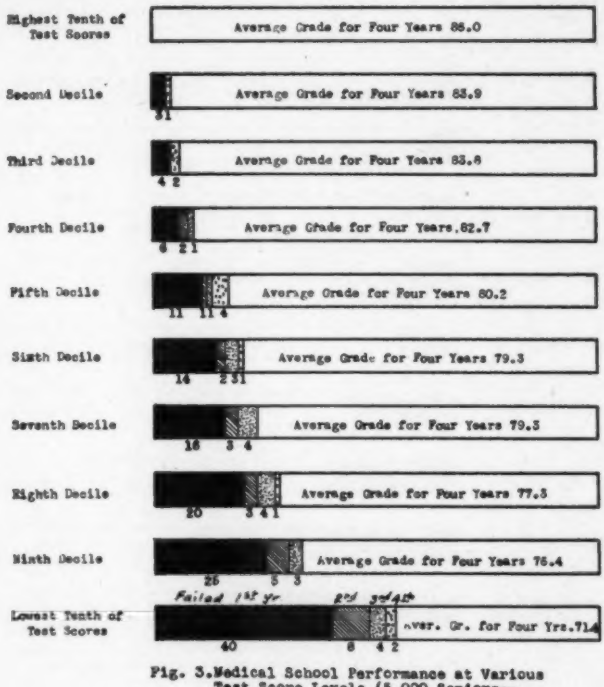


Fig. 3. Medical School Performance at Various Test Score Levels (5,000 Seniors--Class, June, 1933)

We have been very much interested in studying in a similar fashion students who have been tested in the premedical colleges since our Committee has been administering the tests to students before their entrance to the medical schools. As was true with the experimental group, we should expect the test scores of the students tested in the premedical colleges to predict their performance in the medical school. Certain expected differences between studies on groups tested before entrance and those tested experimentally after entrance to medical schools might be mentioned, how-

ever, before we present these findings. First, with an extensive use of the test the number of failures should be diminished, since there will be an exclusion of those of lowest ability who would constitute a large proportion of the failures. If the same number are still failed in the medical school after an exclusion of those making lowest scores on the test, the prediction of failures by the test would probably be somewhat less. In other words, if the same number of failures occur and students are selected

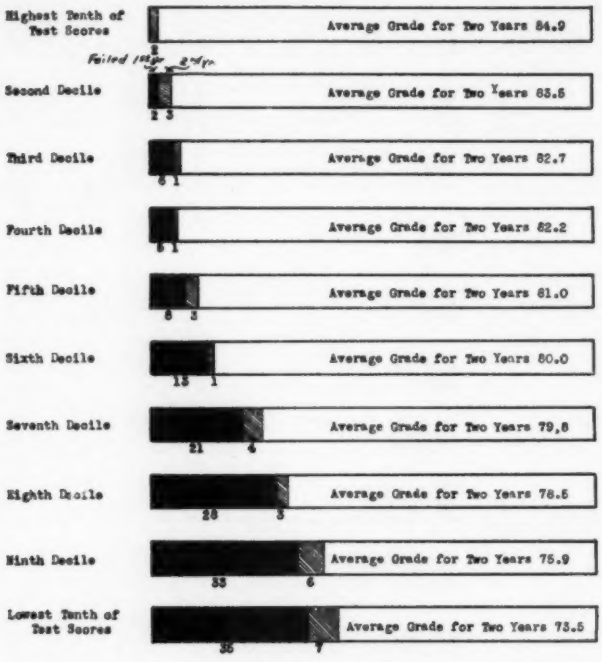

Highest Tenth of Test Scores
Average Grade for Two Years 84.9
Second Decile
Average Grade for Two Years 83.6
Third Decile
Average Grade for Two Years 82.7
Fourth Decile
Average Grade for Two Years 82.2
Fifth Decile
Average Grade for Two Years 81.0
Sixth Decile
Average Grade for Two Years 80.0
Seventh Decile
Average Grade for Two Years 79.8
Eighth Decile
Average Grade for Two Years 78.5
Ninth Decile
Average Grade for Two Years 75.9
Lowest Tenth of Test Scores
Average Grade for Two Years 73.5

Fig. 4. Medical School Performance at Various Test Score Levels--Sophomores, 1932-33.

at the beginning so that the low test scores are excluded, these failures may be more related to other factors entering into medical school performance. In Figures 4 and 5 we present the attainments of various tenths of test scores for students admitted in the fall of 1931 and those admitted in the fall of 1932. These charts of prediction of medical school work are very similar to the charts on the experimental group except that there is a slightly lower percentage of failures. We still see the marked comparison between the attainments of students falling in the upper tenths of test scores and those falling in the lower tenths.

DETAILED STUDY OF FRESHMAN GROUPS 1932-1933

Because we had available a large amount of information with respect to premedical work and other factors on those students admitted in the fall of 1932, we selected this group for a detailed study of various factors involved in predicting medical school work. These students have now completed the first year of their medical school work and we have used their records on this first year as indicative of their success or failure in their academic work.

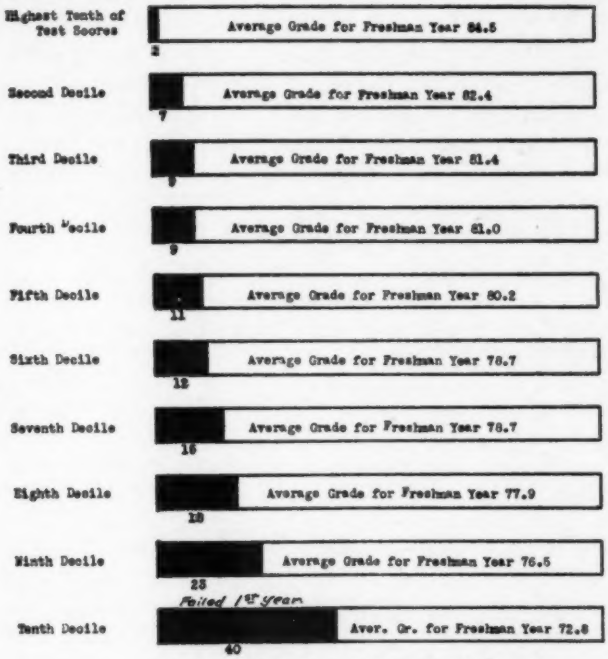


Fig. 5. Medical School Performance at Various Test Score Levels--Freshman, 1932-33.

First of all, it might be of interest to know something about the general ability level of the students admitted in this group. The average of all the students admitted was a 56th percentile score, which places the average student six percentile prints above the average of all tested, the average percentile for all tested being 50. Table 3 gives a comparison of students admitted with the whole group of applicants tested. About two-thirds of the students tested in the highest tenth of the test scores were admitted to medical schools; about three-fifths of those tested in the highest quarter; about one-half of those tested in the middle half of the test

scores; while only about one-third of those in the lowest quarter were admitted, and only about one-fifth of those in the lowest tenth. These figures indicate something of our selection of students admitted to the medical school so far as their ability is concerned.

TABLE 3.—COMPARISON OF STUDENTS ADMITTED (FALL 1932) WITH TOTAL GROUP OF APPLICANTS TESTED

	All Applicants	Admitted
Highest 10 per cent made score above	208	211
Highest quarter made score above	185	191
Median score was	156	163
Lowest quarter made score below	124	134
Lowest 10 per cent made score below	95	108

In our studies we have found a considerable difference in the various medical schools as to the degree of selection of their students. The average percentile of students admitted in the 1932 classes varies from 83 to 26 in the different medical schools. The percentage of students admitted with a percentile rating below 25 (students in the lowest quarter tested) varies in the different schools from none to about 50 per cent of the admissions.

TABLE 4.—RELATION BETWEEN AVERAGE TEST SCORES OF STUDENTS ADMITTED AND PERCENTAGE OF STATE BOARD FAILURES

Schools with Average Test Score of Students Admitted Above 180 (70 percentile)		Schools with Average Test Score of Students Admitted Below 145 (40 percentile)	
School	Percentage State Board Failures	School	Percentage State Board Failures
A	0.0	I	15.5
B	0.0	II	12.2
C	6.3	III	8.8
D	1.4	IV	10.6
E	1.6	V	38.9
F	2.7	VI	8.1
G	1.3	VII	3.2
H	0.0	VIII	15.9
I	0.0	IX	11.3
J	0.0	X	3.7
K	0.0	XI	3.0
L	2.8	XII	6.7
M	4.2	XIII	0.0
N	2.4		
O	0.0		
Average % Failure	1.5		9.9

In order to see whether this selection of students by the different schools has any bearing on the general standing of their students, we have compared the degree of selection of students with the standing of each school on state board examinations, using the average state board standing for the past three years. This comparison is presented in Table 4. The average percentage of failures (in examinations taken outside own state) for the three years for all schools is 4.8 per cent.

1. *Study of Separate Parts of Test of 1932-1933 Freshmen.*—We have already presented the studies on this group above in our discussion of method of improving the test.

2. *Study of Predictive Value of Premedical Scholarship for 1932-1933 Freshmen.*—For these students a similar study has been made of the predictive value of grades in the four premedical sciences (general chemistry, organic chemistry, physics and zoology) and the total premedical scholarship average. The average correlation for each of these subjects and the total scholarship is shown in Table 5.

TABLE 5.—CORRELATION OF PREMEDICAL SCHOLARSHIP WITH MEDICAL SCHOOL WORK.

Premedical Subject	Correlation with Average Freshman Grades 1932-33	Medical School Grades Four Year Grades June 1932 (1,000 cases)
Premedical Average	.50	.44
General Chemistry	.41	.38
Organic Chemistry	.37	.36
Physics	.47	.33
Zoology	.38	.37

Such studies as these, and of the separate parts of the test, should be of value in arriving at the best combination of criteria for selecting students. By comparison with the premedical criteria the comparative value of the Aptitude Test can be indicated.

3. *Study of Cases of Discrepancy Between Test Scores and Medical School Performance.*—In our study of the predictive value of the test scores we have naturally been considerably concerned about those cases in which there is a discrepancy between the test scores and the medical school work. There are, in general, two types of discrepant cases: first, those students with high test scores who do poor medical school work (which constitute the larger number); and second, those students who make relatively low aptitude test scores and do satisfactory medical school work.

Assuming that the aptitude test measures the student's natural ability fairly accurately, we might suppose that the first type of discrepancy is produced by the influence of various other factors besides ability in determining the academic success of the student. There are numerous factors which all would recognize as having some influence on attainment. In some instances age may play a part. In other cases financial or family worries may be important, also lack of proper habits of study, and sometimes personality factors. All of these, in particular cases, may have considerable influence in making it impossible for a student to utilize his ability to his best advantage. In the case of the second type of discrepancy, it is, perhaps, a little hard to see the probable casual factors. On the face of the situation, it looks as if we were dealing with students of low ability who

make up for this lack in some way. However, there are possibly other things which account for the discrepancies in some of these cases. Most of these would be factors which tend to produce a test score lower than is indicative of the student's actual ability. A language handicap would be an example of such a factor. Exceptional caution and lack of speed might be another.

In studying these discrepant cases, we have been markedly handicapped in not having available any objective measurement of many of the factors involved. In order to make a thorough study of these discrepant cases we should have a record of the personal traits of each student. We would need to know his habits of study; the amount of time he gives to his school work, as compared with other interests; whether he does any outside work; whether he is worried by finances; what his race is, and a large number of other items. It may be that our Committee can undertake a study involving some of these factors. At present, however, we can present an analysis of only a few things which may be involved in these discrepant cases. An analysis of these and similar future studies that we may make should help us in arriving at recommendations for the best use of the aptitude test.

Herewith we present an analysis of the factors which we have thought may enter into some of the cases of discrepancy between test rating and performance in medical school work.

(a) *Relation of Foreign Birth and Language Handicap.*—This usually produces on a written test, where speed is of some importance, a score that is too low in proportion to what the student can do in classroom work where he can adjust the language factor somewhat and can spend whatever time is necessary, and refer to the dictionary as often as he pleases in attaining his goals. An example of a discrepant case of this nature may be cited:

> "I. M. (A young Japanese with only four years of residence in an English speaking country). Eighth decile on the test. Average freshman medical school grade, 87. Two years of premedical college work. Average premedical scholarship, 87. Without doubt his language handicap prevented his doing himself justice on the test."

(b) *Relation of Performance on Separate Parts of the Test.*—In some instances an examination of the performance of the students on separate parts of the test may give a clue to discrepancy between total test rating and medical school work. Two examples may be cited—the first, a student with relatively high test score who did poor work, and the second, a student with relatively low score who did exceptionally good work.

> "D. L. F. Age 22. Fourth decile on test. Average freshman medical school grade, 71. Four years of premedical work. Premedical scholarship average, 82. Aptitude test record unusually high in premedical information test and in vocabulary test; relatively low on other parts.
>
> "Possible Factors Having a Bearing upon Discrepancy: High test score due

largely to performance on those parts of the test dependent on past training and experience; low on learning parts of test or parts dependent more directly on natural ability."

"A. S. H. Age 20. Eighth decile on test. Average freshman medical school grade, 90. Four years of premedical work. Premedical scholarship average, 78. Total aptitude test record low, but relatively high on parts dependent more directly on natural ability.

"Possible Factors Having a Bearing upon Discrepancy: Poor premedical work which was reflected in performance on some parts of the test, giving a lower total score than is a true indication of student's natural ability."

(c) *Relation of Selectivity of Students in Individual Medical Schools.*—Those medical schools in which the students are highly selected in ability, where all the test scores are high, in general, show a lower relationship between test and medical school performance than do those schools where the students are less highly selected. To look at it another way: If all students in a school are above the average in ability, all are quite capable of passing a medical course from the standpoint of ability, and, therefore, whatever failures occur are obviously to be related to other factors than ability, with the subsequent result of producing apparent cases of discrepancy between test and performance; for these other factors may produce failures in the highest or the middle students admitted to such a school.

(d) *Methods of Grading in the Medical Schools.*—In trying to correlate the aptitude test with the medical school grades, it is obvious that we have two variables, and a low correlation may be secured by either a deficiency in the aptitude test, or in the medical grades, or in both. In other words, we are confronted by a situation some what like this: Let us assume that it is decided to put a tunnel through a mountain. A group of men, after making measurements, start on one side of the mountain at the same time that another group is starting on the other side. They hope, if their measurements have been accurate to bring the two ends of the tunnel together near the middle of the mountain. It is obvious that if either group falls down in its measurements, or if both groups fall down, the two ends will not meet. That is somewhat our situation in connection with the aptitude test. In the past, we have always assumed that the grading system in the medical schools was more or less perfect, and that the grades given the individual student accurately portrayed his amount of knowledge in the subject. We assumed, further, that lack of correlation was the result of failure of the test to indicate adequately the ability of the student. I believe that, in general, we have been right in making these assumptions because it is the job of our Committee to be very critical of the test, and to try to overcome its defects. Moreover, we can do something about the defects of the test, whereas we can do little or nothing about defects in the grading system.

At this point, I would like to say that, on the whole, the grading system

in the medical schools is better than in other schools, one of the main reasons being that those who grade medical students know that their students will be graded by state and national licensing boards. For that reason the instructors are probably more careful with their grading. There are one or two things, however, that might indicate that in some instances there are individual instructors whose grading does not accurately portray the amount of knowledge the student has in that particular course. This, I am frank to say, represents the exception rather than the rule, but when it comes to the case of discrepancy, we are also dealing with the exception rather than the rule. Let us look into this further.

The chief factors in grading which tend to make for low relationships of grades with ability measures are two: (1) Unreliability of grades assigned, due chiefly to assigning grades on subjective opinions and impressions rather than on objective measures of what the student knows about a subject; and (2) lack of distribution of grades, or assigning nearly everybody in the class very nearly the same grade.

We do not have a very definite way of demonstrating the first of these influences. It is suggested by the fact that the correlation between grades in different subjects assigned to the same students the same year in medical school are in some instances very low. We selected four schools for studying this, using the classes graduating in June, 1933. In one of these schools, the grades of all the students in two of the freshman subjects, anatomy and chemistry, showed a correlation of only .01, or practically no relationship to each other. In other words, the grades the students received in anatomy bore no relationship to grades received in chemistry. From what we know of student performances, it is quite unlikely that there is such a discrepancy between what the students know in one subject and what they know in another subject taken the same year. There are, of course, occasional instances of students who are very high in one subject and low or mediocre in another, but in a whole class of over 80 students this is not likely to be true of the whole class. In another instance in these four schools, two third year subjects, medicine and surgery, showed an equally poor relationship (.02). As pointed out above, this represents the exception rather than the rule, for in most schools the grades in one subject do give a very good indication of what we may expect the students to do in other subjects.

Let us now examine the second factor which I mentioned—that of distribution of grades. If all students were assigned a grade of 85 in a subject, it is obvious that there could be no relationship between the grades and test scores; for the students low on the test would receive 85, as would those high on the test. If all received either 84, 85 or 86, there

could be no very close agreement because the students would be bunched too nearly together in grades. If we extend this hypothetical illustration far enough, we would come to the conclusion that the more widely we spread our grading the more possibility there would be of differentiating the grades. We studied this situation on the four schools selected above.

GRADES	SCHOOL I MEDICINE	SCHOOL II SURGERY	SCHOOL II OBSTETRICS	SCHOOL III PHARMA-COLOGY	SCHOOL IV SURGERY
Over 92	I	IIII			
92					
91					
90					I
89					I
88			I		II
87						
86						
85						
84						
83						
82						
81						
80						
77			I	I	
75			I		
Below 75					I

Fig. 6. Lack of Distribution of Grades Associated with low Relationship Between Grades and Ability Ratings.

For twenty-four separate medical school subjects studied in their relationship to the aptitude test ratings, we found fifteen with correlations above .30 and 9 with correlations below .30. The fifteen with the higher correlations showed an average range of the middle half of grades of 4.8. In other words, the spread of distribution of grades in those subjects giving

the higher relationships was more than one and a half times as great as in the case of those of the lower relationship. It may be of some interest to note a few examples of lack of distribution of grades associated with low relationship between grades and ability ratings. Four such distributions are presented in Figure 6.

A tabulation of average correlations between separate medical school subjects for the various years of medical school courses shows a decrease in relation between test and grades in the separate subjects from the first to the fourth year. It is very probable that such factors as we have been discussing enter into this situation. Tabulation of grades certainly indicates that the distribution is less from the first to the fourth year; and it is likely that factors of unreliability of grading increase. (Table 6). Part of the situation is, of course, accounted for by the elimination of the poorer students from year to year.

TABLE 6.—COMPARISON OF CORRELATION BETWEEN TEST AND SEPARATE MEDICAL SCHOOL SUBJECTS FOR THE FOUR YEARS.

	Average Correlations*	Average Range of Middle Half of Grades
1st year subjects	.405	8.2
2nd year subjects	.377	6.4
4th year subjects	.234	5.8
3rd year subjects	.215	5.4

*It should be remembered that these correlations are based on separate subjects rather than on the average grade on all subjects in the year's work. The correlation of the average grades of the student in all his subjects is about .60, a much higher correlation.

(e) *Other Factors in Cases of Discrepancy to be Studied by Questionnaires.*—The complete understanding of many of the cases of discrepancy between test score and medical school performance calls for information about the student and his habits beyond what is available from his test record and medical school grade record. Such are factors of personality, habits of study, outside work, interferences from financial and family worries, etc.

We are presenting preliminary indications from a study of some of these factors by a questionnaire addressed to the deans of the various medical schools. We hope that this preliminary study will indicate the feasibility of such a method of studying individual cases and enable us to improve the efficiency of the aptitude test. The results of this study will also probably indicate better methods of interpreting the test results in the selection of students.

The following questionnaire was sent for each case of discrepancy where a student with a high aptitude test score made a poor record in the medical school.

Was this student employed for any outside work during his medical course?
Was this student handicapped by any illness or poor health during the year?

Was he absent for considerable time for any other reasons?
Was he handicapped by financial worries during the year?
Do you have any information or impression that this student studied too little?
Do you think that outside interests interfered with this student's medical school work?
Is this student Jewish or Gentile?
How would you rate him as to personality?
Do you know any other factors that might have interfered with his performance?
What is the student's explanation of his deficiency?
What do you give as the explanation of his deficiency?

The questionnaire sent for the cases of low aptitude test score with good medical school work follows:

Would you consider this student of the hard-worker, plugger type?
Do you have any information or impression that this student spends much more time than the average in study?
Does this student have a language handicap, from foreign birth or other reasons?
Does this student have a particularly pleasing personality?
Is this student Jewish or Gentile?
Does this student have relatives who are physicians?
Has this student to your knowledge had any coaching or outside help in his medical school work?
Does the student suggest any reason why he may have made a lower score on the Aptitude Test than he deserves?
Do you know of any other factors that might have a bearing upon this student's success in medical school?

One of these questionnaires was sent for each discrepant case in last year's freshman groups. At the completion of this report, 144 cases had been reported for students who did poorer work than their scores predicted; and 128 who did decidedly better than their scores predicted. The

TABLE 7.—QUESTIONNAIRE STUDY OF DISCREPANT CASES WITH MEDICAL SCHOOL RECORD BELOW TEST PREDICTION.

Employed for outside work during course	19%
Illness or poor health a factor	22%
Absent considerable time for other reasons	3%
Handicapped by financial worries	27%
Studied too little as stated by deans	34%
Outside interests interfered	31%
Race—Gentile	84%
Jewish	15%
Negro	1%
Personality—Rated above average or good	53%
Rated average or fair	37%
Rated below average or poor	10%
An explanation for deficiency offered by student (rest not offered or not interviewed)	59%
An explanation for deficiency offered by dean	81%

total number counted as discrepant cases amounts to about 5 per cent of the total admissions, about 300 in number. In the remaining 95 per cent, the medical school attainment was fairly close to what might have been

predicted for the student from his aptitude test score. The results are summarized in Tables 7 and 8.

TABLE 8.—QUESTIONNAIRE STUDY OF DISCREPANT CASES WITH MEDICAL SCHOOL RECORD ABOVE TEST PREDICTION.

Hard worker, plugger type of student	61%
Spends much more time than average in study	34%
Language handicap from foreign birth, etc.	4%
Particularly pleasing personality	50%
Coaching or outside help in studies	6%
Close relatives who are physicians	35%
Race—Gentile	80%
Jewish	19%
Negro	1%
Explanation for low Aptitude Test score suggested by student	51%
Explanation for discrepancy offered by dean	60%

In addition to the factors detailed in these two tables, the explanations offered by the deans for the discrepancies have in many instances been very helpful and enlightening. For the students with high scores, whose medical school records were below what we would have predicted for them, we have classified the factors indicated as entering into the discrepancy between test and school work as follows, with sample explanations under each type.

HIGH TEST SCORES—LOW MEDICAL SCHOOL RECORDS:

Dean's Explanations:

1. Study Habits:
   - "Wasted time."
   - "Did not know how to study—not accustomed to being on her own."
   - "He overestimated his ability."
   - "He found the transition from generalized premedical work to detailed and specific medical school work too abrupt, and could not adjust himself quickly enough."
2. Illness:
   - "Appendectomy."
   - "Eye trouble."
   - "Was ill (influenza) and absent for about a week. Father died during year. We expect him to do better as a sophomore."
   - "Impaired hearing."
   - "Automobile accident with serious injury."
   - "Arrested case of tuberculosis, was ordered to bed early each evening by his doctor."
   - "Frequent attacks of indigestion."
   - "Had scarlet fever, out six weeks."
3. Energy:
   - "Lack of energy; basal metabolism of minus 26."
   - "Sleepy and listless; no pep."
4. Financial:
   - "Financial worries."
5. Other worries:
   - "Lived with married sister; distraction; baby in the family."

"Worry due to illness of father and brother."

6. Emotional Instability:
   "An unstable individual with many worries, and necessity to earn living, coupled with poor judgment and only average mental ability."
   "Nervous; high strung; worries."
   "Petted and pampered youngster; did not apply himself."
   "Has definite serious personal problem about which he worried."
   "Incompatibility with certain professors."
   "Student claims he was 'discriminated against'."
7. Social Distractions:
   "A 'play boy' with many love affairs."
   "Too much 'girl'."
   "On athletic team."
   "Social activities; unstable mentally; severe speech defect."
8. Outside Employment:
   "Employed after class and during night."
   "Married and has family to support."
   "Working 20 hours per week."

Much could undoubtedly be done to avoid certain of these discrepancies; quite obviously some of them will continue to occur—those cases which one would have to class as purely accidental, such as unavoidable illness, injuries, etc. Those with poor study habits and those who study too little might be reduced in number by appropriate conferences and warnings; those with emotional and personality difficulties might be helped with proper counsel, or, in some extreme instances, they might advisedly be denied admission where these handicaps are detected before admission. Physical defects, sufficient to interfere with performance, such as poor vision or hearing, ought to be corrected, if possible; otherwise they should constitute grounds for denial of admission. The question of business and financial worries in many cases will be a very hard one to deal with.

For the cases of students with low aptitude test scores who did better than would have been predicted from their scores, there appear to be two types. First, those students whose test scores are probably accurate indications of their ability, but who "make up for their low ability," as it were, in some way. A consistently hard worker or "plugger" student may fall in this group. Should we desire to give an opportunity to such students, special consideration might be given to low test students whose premedical work indicates consistently good results. Coaching or special outside help and encouragement enters into some of the cases also. It would appear that the student with a low rating who has a close relative who is a physician is more likely to do well than otherwise. It may be that through his relatives he is made to realize the difficulty of the medical course, or it may be that the relative actually assists him in mastering the medical course.

A second group of the low test score students (a smaller group) is

made up of those whose test scores are not accurate indications of their true ability. Such as students with a language handicap from foreign birth, where the language difficulty is more of a handicap in the short time test performance than in the medical school work; students who were ill at the time the test was taken; students who are exceptionally slow, but otherwise show a fair performance; and students who do not take the test seriously. The first three groups of these we have attempted to ascertain at the time of the test with a notation to the effect with the student's test report, so that due allowance can be made in interpreting his rating. The occasional cases of students who do not take the test seriously will undoubtedly be reduced to a negligible number as time goes on and the purpose of the test becomes more generally known. We are attempting to avoid such cases at present by proper instructions to those who administer the tests in the various premedical colleges.

SOME SUGGESTIONS FOR USE OF THE TEST RESULTS.

From time to time our Committee has received requests from medical schools as to the best uses to be made of the test results in the selection of students. It might be well to discuss this question briefly. There are, of course, many questions, such as the relative weight to be attached to various criteria for entrance, the establishment of critical points, etc., that must be decided by individual schools. It probably would not be practical even to suggest an entirely uniform arrangement for all the medical schools. Conditions in various schools are too different for this. A common practice, however, is to allow one-third for the aptitude test, one-third for the premedical grades, and one-third for such factors as personality and character—to be determined from a personal interview and recommendations. It is obvious that this last third cannot be very objective, but it sometimes takes care of a number of important things that neither the test nor the premedical grades can measure. Some schools are making use of interview blanks and systems of rating that make these personality factors as objective as possible. Probably the most convenient scheme would be to give a definite numerical consideration to the first two criteria, using the third as a final check without giving it a definite numerical evaluation.

Let us assume that students are to be selected on the basis of consideration of their premedical grades and the aptitude test rating. If only two-thirds of the applicants could be admitted, and if we were admitting solely on the basis of premedical average, we would admit the highest two-thirds, setting the critical point in premedical average at the point that would admit this highest two-thirds. If students were to be admitted solely on the basis of the aptitude test rating, we would admit the highest two-

thirds on the test and would set our critical point on the test at the percentile point that would admit this highest two-thirds. In other words, were each of these criteria to be considered separately, and we wished to select 50 students from 75 applicants, we would take the highest 50. Thus we can easily say that those that are high in both criteria can be admitted without question, provided that they meet course requirements and there is no other definite reason for refusing them admission. We can also say without hesitancy that those falling below both these standards could be refused admission.

However, in such a scheme there will be cases of students who have satisfactory premedical averages but who fall below the standard in the aptitude test rating, and who have high aptitude test ratings but are low in premedical scholarship. I would consider each of these students separately and very carefully from the standpoint of such things as: (1) Desirability of applicant from standpoint of personal traits to be judged from interviews and recommendations and opinions of previous instructors. (2) Amount of premedical work the applicant has done: It is probably desirable in the case of doubtful applicants who have done a bare minimum of premedical work that they do more before attempting the medical course. (3) Grading standards of the college from which the applicant comes. It frequently happens that high premedical averages of students who show relatively low ability are due to a tendency toward unusually liberal grading on the part of the college, and if the student had gone to another college his premedical average might have been considerably lower. (4) Peculiarities in the applicant's performance on the test, especially consideration of his performance on the different parts of the test. For example, a student who did creditably on the first six parts of the test, but made a zero, or a very low score, on the last part, is probably slow and is handicapped largely by lack of speed in his performance. He may not be quite as undesirable an applicant as his rating shows. Or, as another example, a student may show fairly good scores on all the parts of the test except part 5 (the Scientific Vocabulary Test). This would probably indicate two things: first, that his general vocabulary is below par; second, that he has had most of his training in the general cultural subjects rather than in the sciences. (5) Time out of school: In general, we have found that applicants who have been out of school several years make a relatively poor showing on the test, probably due to the fact that they are somewhat out of touch with academic things and academic performance. All these items should, of course, not be considered as capable of counteracting or making up for a great deficiency, but they might be considered in cases of discrepancy between premedical averages and test ratings.

DISCUSSION

DR. J. M. H. ROWLAND (University of Maryland): I want to say in the beginning, lest I might be misunderstood, that I agree entirely with the results presented in the Committee's report and the views of the Committee in practically all of its findings.

I was rather astonished to see the tremendous percentage of failures in the lower tenth. I think, probably, as time goes on this percentage will decrease. There is no doubt that the men with the best scholastic records in premedical

HIGH GROUP		LOW GROUP	
Test Score	Average Grade	Test Score	Average Grade
190	85	73	Failed first year
187	87	80	" " "
186	87	90	" " "
197	88	95	" " "
187	84	91	" " "
189	86	82	79 (4 failures)
201	84	107	Failed first year
200	83	62	" " "
194	85	91	" " "
195	87	95	84
	Av. 85.6		

Fig. 1. Data on 10 high and 10 low men freshman class 1929-1930.

courses and with the best aptitude test scores will, in the main, make the best scholastic records in medical schools, other things being equal. This is so generally agreed on that there is no question of doubt about it and it admits of no discussion.

I wish to emphasize one point and it will be brought out by a few slides which I will show.

The first slide shows to a very pronounced degree the same results which the committee has shown. It could not be a better representation of what they have been

Freshman 1931-1932	Results as Sophomores	Freshman 1931-1932	Results as Sophomores
10 High Men		10 Low Men	
A- O.K.	O.K.	Q- Repeat	
B- O.K.	Repeat	R- O.K., 1 re-ex	Did not return
C- Repeat		S- Dropped	
D- O.K.	O.K.	T- O.K.	O.K., 1 re-ex
E- O.K.	O.K.	U- O.K.	O.K.
F- O.K.	O.K.	V- O.K.	O.K.
G- O.K.	Did not return	W- O.K., 1 re-ex	O.K.
H- O.K.	O.K.	X- O.K., 2 re-ex	O.K., 1 re-ex
I- O.K.	O.K.	Y- O.K.	O.K.
J- O.K.	O.K.	Z- O.K.	O.K.
9 O.K.	7 O.K.	8 O.K.	7 O.K.
1 Repeat	1 Repeat	1 Repeat	
	1 Did not ret.	1 Dropped	

Fig. 2. Data on 10 high and 10 low men in first and second years of course.

trying to show, except that it is much more pronounced than the reports which they have shown. This group was admitted when we were not paying much attention to the aptitude tests. Those represented were the high group of 10 and the low group of 10, always referring to the aptitude tests, and the results in the high group and in the low group are shown and do not need to be explained. If the results were always as certain as this, there would be only one way to select

a class and that would be to take the upper 50, 75 or 100 men on the aptitude test list.

The second slide shows a different picture. It shows the results of the 10 high and the 10 low aptitude test men in the class, with what happened in the first and in the second year, the number of men who repeated the year, those who were dropped, and those who remained in the school. It still proves the contention of the Committee that the better men in the aptitude test have better scholastic results than the lower men. Of the 10 high men, 9 were good students; 1 was compelled to repeat. Of the low 10 students, 1 repeated and 1 dropped out. When they came to the second year, one man, who was all right in the first year, had to repeat

Freshman Class--1932-1933

High Men		Low Men	
1- O.K.	11- Withdrew-111	97- O.K.	107- O.K.
2- O.K.	12- O.K.	98- O.K.	108- Dropped
3- O.K.	13- O.K.	99- Repeat	109- O.K.
4- Dropped	14- O.K.	100- Dropped	110- O.K.
5- O.K.	15- O.K.	101- O.K.	111- O.K.
6- O.K.	16- O.K.	102- O.K.	112- O.K.
7- O.K.	17- O.K.	103- O.K.,1 re-ex	113- O.K.
8- O.K.	18- Repeat	104- Dropped	114- O.K.
9- O.K.	19- O.K.	105- Withdrew	115- O.K.
10- O.K.	20- O.K.,1 re-ex	106- O.K.,1 re-ex	116- Repeat
1 Withdrew; 1 Repeat 1 Dropped; 85 % Advance 90% Remained in School		1 Withdrew; 2 Repeat; 3 Dropped; 70% Advance 80% Remained in School	

Fig. 3. Data on 20 high and 20 low men in another class.

the second year; one did not return. Of the 10 low men, 1 repeated and 1 was dropped. Seven men were advanced, but two of them were advanced after a re-examination. The grades made are not shown, but they are definitely higher in the higher group. The same number of men were carried over into the third year as satisfactory medical students.

The third slide presents another group of twenty of the first and twenty of the lowest men in another class from the standpoint of the aptitude test. We note here the same result. In the high group, one student withdrew, one was compelled to repeat, and one was dropped; 85 per cent of the class advanced and 90 per cent remained in the school.

In the lower group, 1 student withdrew, 2 students repeated, 3 were dropped. Only 70 per cent of the men advanced from the second to the third year; and only 80 per cent remained in the school. All of this confirms the findings of the Committee.

The fourth presents a rather peculiar result, but it is an entirely unfair representation. It shows a very much better result in a group of seven men quite low from the aptitude test standpoint than does a group of seven who are very much higher in the aptitude test. It is only fair to say, however, that this is a group of the best of the low men compared to a group of the worst of the high men; but it does show that the good men, from the standpoint of the aptitude test, may easily fail, and some of the poorest pass rather easily; and that the results are not always what you would expect from the standpoint of the aptitude test.

The fifth slide presents the results which I want to discuss. I took ten men from the top of the class and ten men from the lowest group who had passed on into the third year, both groups having completed the first two years and entered the third year as satisfactory medical students.

I then selected twenty-four men who had not taken the aptitude test but who

had completed the first two years of the medical course and entered the third year as satisfactory medical students. I then sent a letter to the teachers who had taught these men for two years and who knew nothing about the results of their

74- O.K.	166- Repeat
97- O.K., Repeater	195- Dropped
104- O.K.	186- Repeat
87- O.K.	210- Repeat
108- O.K.	160- Dropped
106- O.K., 1 re-ex	187- O.K. after S.S. in anatomy
67- O.K.	180- O.K. ditto
115- O.K.	

Fig. 4. Data showing that the low men made a better record than the high men

aptitude tests and nothing about their premedical scholastic attainments. I asked these teachers, as far as was humanly possible, to forget the scholastic grades which these men had made in their classes and to judge them from the standpoint of honesty, attention to their duties, industry, and whatever else goes to make up what they would believe a man needed to become a good and successful practitioner of medicine in future years; that is, to estimate from the standpoint of citizenship what they thought of these men. I asked them to mark in their report the standard of a good average man as 50.

The men without the aptitude test fared as you might expect. The men who do not take the aptitude test will give various reasons for it, but the usual reason is that, as a class, they have a lesser sense of responsibility. There are, of course,

Aptitude Test Taken	
10 High Men	52.2%
10 Low Men	56.7%
Aptitude Test not taken	
24 Men	46.8%

Fig. 5. Estimation by Teachers of Character of Students and Probability of Success.

exceptions to this rule. Some of these men after they come to school are apt to be absent from work, particularly on the days of unusual football games or the horse races at Pimblico. They are occasionally doctors' sons. Because of this lesser sense of responsibility they do not make the same progress as do other men. In any case, you would expect them to fall below the average; and in this case they did so, showing 47.8 as compared to 50. The ten high men were a little above average, the percentage figured out as 52. The rather remarkable fact is that the ten lowest men figured out as 56.

I understand perfectly well that there are chances for mistakes in such a test, and how impossible it is to estimate these men as I had asked our teachers to do. Several of them rebelled, but I finally persuaded them to report the estimates of these men as they saw them. You will recall that these teachers knew nothing of the standing of the various students in the aptitude test and they knew nothing of their premedical work, but knew them only as they had seen them in their laboratories and classrooms.

This test, faulty as it necessarily was, confirmed what I believed to be true, that there is still more to this matter of the selection of students than the transcripts from deans and registrars and the very guarded letters from teachers. The letters are frequently so carefully guarded that it is hard to understand whether the writer believes the man to be a good student or not.

In addition to the transcripts of deans and registrars, in addition to these carefully guarded letters from teachers, in addition to the aptitude test, and in addition to the personal interview, there ought to be some further way of evaluating these men and finding out just what they are likely to do as medical men, if we can once pass them through school. Of course, the obvious criticism is: Why should we bother with these low men, when a large number of men apply who will most certainly get through the school if admitted? Why waste the time of teachers and the money of universities on men who need this extra labor in order to qualify? My reply is: Why not bother with any of them who show a higher degree of citizenship and who, if they graduate, will probably make good men when once they get through school?

DR. BEVERLY DOUGLAS (Vanderbilt University): It seems to me that Dean Rowland's timely remarks point out the further necessity for study of discrepant cases through questionnaires, such as the Committee sent out this year.

At Vanderbilt, we have purposely taken men with very high scores and with very low scores, partly because of our interest in determining the value of this test.

It may be timely here to take all of our discrepant cases, records of which I hold in my hand, and give the reasons for unusual performances in them. One of these men came in with an unusually low test score. On interview, I found him to be a man of very likable and pleasing personality, who said he had been a slow worker all his life. His freshman work showed that he was a "plugger." This man stated that he knew he had done poorly on the aptitude test, just as he had done on every test he had ever taken. Somehow, a test simply "scared him to death." However, when he got in medical school he was thrown in with a man who turned out to be the ranking student of his class. With that influence, and the fact that he was a hard worker, his grades soared out of proportion to his test score.

Next, was a young lady who came from the East, and who said that she knew only two or three people outside of school. This girl was obviously poorly adapted to her surroundings, and also admitted that because of her unhappiness she had not applied herself to her work. It is not strange that she did not make the high grades which her test score indicated she could.

The third student was a very interesting case. This man said that he had made a high score on his test, but that during the first two or three weeks he had been warned that he might fail in the subject he was taking at the time. This frightened him and he developed a natural antipathy to the subject which he felt all through his freshman year. He failed in the course, which, of course, brought his general grade down lower than it should have been.

When the personal foibles and the essentially human factors are discovered in individual students, such as these, I believe that two facts will stand out, both of which will argue in favor of the continuance of this test. In the first place, the satisfactory explanation offered for most of the discrepant cases can only mean one thing, namely, that in a very material percentage of cases the accuracy of the test is much greater both for those which have placed high and those which have placed low than would be indicated by scores alone.

In the second place, I cannot refrain from pointing out that by comparing test scores with the performance of freshmen we will be afforded a means of discovering most cases in which there is maladjustment of a student to his environment.

We will have a lever, an entering wedge, so to speak, by which we may understand students' problems more fully.

DR. A. M. SCHWITALLA (St. Louis University): We have attempted in our school to put the aptitude test to the severest test we could think of, testing the test. We have tried to test it for its prognostic value in foretelling the maintenance of the relative position of the students in a given class. We have already gotten results in the study of one class which, to my mind, are so remarkable that they ought to be reported.

We handled this performance graphically at first. From that we are intending to reduce it to statistical methods. In the middle column of this graph we placed the students in the order of their aptitude test, beginning with the highest we took four years ago, 207, and ending with the lowest taken that year.

One student came (I do not know exactly how, but he is still in school) with an aptitude test of 75, a very highly recommended student, who had very high grades in his premedical studies.

In the right hand column we placed the students in the order of their preclinical subject grades. On the left side, the students are arranged in the order of the grades made in their junior subjects.

Thirty-two of the 108 students maintained positions in their preclinical subjects that were within ten points of the positions they would have occupied or did occupy on the basis of their aptitude test, which, I think, is a very unusual fact. Twenty-four of the 108 students maintained positions in their grades in clinical subjects that were within ten points of the positions they occupied on the basis of their aptitude test. Percentages are, perhaps, more illuminating. Thirty per cent of the students maintained positions within ten points of where they would have been placed on their aptitude test in their preclinical subjects, and 22 per cent maintained those same positions in their clinical subjects.

This study is going on and will be reported for a five-year period at some future time when the study is complete.

Incidentally, I want to corroborate what Dr. Rowland said. Thirty-two students dropped out during the four years were actually in the lower third of their aptitude gradings.

I am a bit concerned about one or two of the directions in which Dr. Moss is going. First of all, about the stress he is laying on the grading in schools of medicine. I cannot accept his statement that the grades made by a student in one subject are any indication whatsoever of the grades to be made by that student in another subject, and I do not see much value in using the general grades or the average grades made by students in all their subjects, for that very reason. This, of course, could be discussed at very great length, but I throw this out to offer some little caution on some of the principles on which Dr. Moss seems to be working.

In our school it is an extremely rare happening for a student to make an average of 90. I think there were only two students in the class graduated last year who made a grade of 90, and only three the year before.

I am also a bit concerned about sending out personal information about individual students, with the student's name, to Dr. Moss' office. When your interrogagraph came to our school, Dr. Moss submitted ten students whose low grades in medical school were a surprise to him, and ten whose high grades were a surprise to him. Our council determined that information should be withheld from

Dr. Moss until after this meeting, to get the sense of this group, because, after all, we are classifying students in what is presumably a public document, and our council felt very serious concern about sending personal information on the student when that student would be identified by his name.

I wonder if Dr. Moss could not modify the information he needs, or the mechanism of getting it. Perhaps the individual school could be allowed to summarize the various questions with just as great effectiveness and without sacrificing the principle to which I have just called attention.

I am wondering why Dr. Moss did not report on that question about the Jewish and Gentile students this morning. I am very curious, and I would like to hear what results he obtained.

Dr. B. D. Myers (Indiana University): It occurs to me that we must have two quite different attitudes with respect to this test. Those of you who have spoken thus far are deans of non-state schools. You do not have to justify your action to any member of the legislature or any state government official.

In our state schools we have that problem, and so long as we have the experience of men admitted to our schools in the lowest tenth of the aptitude test who make perfectly creditable records in our medical schools, you cannot convince fathers and mothers, who are interested in having their sons accepted, that this test should be used in debarring the student. So I have not been able to make much use of this test in accepting or rejecting students. I started out quite prejudiced in its favor. I am still very happy to have the test continued, and we are cooperating. Our boys take the test, but when it comes to the showdown, so long as we have a group of students in the lowest tenth who turn in creditable work, while, on the other hand, we have men in the upper tenth who fail, it is not a basis for admission on which we can place very much weight.

Dr. E. P. Lyon: Do you advise parents of students?

Dr. Myers: By all means. I show the charts and the predicted probability of the applicant's failure. You know what the reaction of the parent is to that. Their boy is the exception, and they are perfectly certain that, if given an opportunity, he is going to give a good account of himself, and the plague of it is, in spite of all evidence against his doing so, sometimes he does.

Dr. Maurice H. Rees (University of Colorado): Our experience in Colorado has been the reverse of that of Dr. Myers. One of our biggest problems in the past has been keeping out the student who has just barely passed in the university. Usually, that student is a friend of some politician who attempts to exert pressure. When we can refer to a national test as one of the main things that has influenced us in keeping the man out, we find it nearly always satisfies the politician, or the father or mother. It has been most useful to us in Colorado with that type of low grade student, and especially the low grade student who has influential relatives.

Dr. L. J. Moorman (University of Oklahoma): Many of the points which have been emphasized should be of great aid to the deans of medical schools. This review of student virtues and student handicaps, however, is quite disturbing to deans in general, because it is so difficult to base a proper appraisement on statistics and make logical use of them.

Considering the multiplicity of the problems which students have, and the fact that they are ultimately up to the respective deans, it occurs to me it might be a good thing for the Association to institute an aptitude test for deans.

I can sympathize with Dr. Myers since I represent a state school. However, I take the position that it is not always necessary, and often not advisable, to let politicians, or even parents, know what deans are thinking and on what their actions are based. However, I am also, to some extent, in accord with what Dr. Rees said in that this test may help to steer us through the difficult situations which sometimes arise because of political pressure.

Dr. F. A. Moss, Washington, D. C.: As concerns the finding of Dr. Rowland, that in some cases there is a negative correlation between test scores and character ratings, I should like to point out that the factor of selection probably accounts for his findings. Without doubt, if a student is relatively low on the test, Dr. Rowland would only take him if he came highly recommended for character and other desirable traits, but if the student were high in the test and in his premedical grades, less attention might be paid to his personality traits. I am in complete accord with Dr. Rowland in his emphasis of the importance of character, I only wish we had some reliable method of measuring such traits as honesty, persistency and the other attributes that go to make up character. Probably, about all we can do on this at the present time is to get the confidential opinions of those in a position to know the character of the prospective student. It sometimes happens that the opinions given are not honest, and have to be evaluated with considerable care.

I think the suggestion made by Father Schwitalla that the discrepant cases be reported to our Committee by number rather than by name, is a good one, and can easily be worked out to the satisfaction of all concerned.

The data on the Jewish and Gentile students are shown in Tables 7 and 8. These data are not very significant, and for that reason I have not tried to draw any conclusions from them.

The point Dr. Myers made in regard to the students who would occasionally make good, although they had low test scores, and of those who occasionally fail with high test scores, would be true if you consider any criterion. With the criterion based on premedical grades, it is just as true as with the aptitude test criterion, yet no one would argue that since the premedical grades do not give a perfect prediction of performance in medical school, one should attach no value to them in selecting medical students. It is a fact, however, that you will not have as many unsuccessful predictions if you use the combined criterion of premedical grades and aptitude test as you will if you use either one alone. This would seem to argue rather strongly for the use of the combined criterion because it is fairer to the individual student.

Dr. E. P. Lyon: Would you explain how you combine them?

Dr. Moss: Let us assume that you have a man who is a 90 percentile on the test. Let us assume, further, that you have the whole group arranged according to percentile on their premedical grades, and that the premedical grade of this man places him at the 70 percentile. You add the two together and divide by two, giving a combined percentile of 80.

Dr. Lyon: I went a step further than using the aptitude percentile of the entire country. I got the percentiles for each of our students in his own group. Would that be better to use?

Dr. Moss: That would be more accurate. Your way is better since it shows how a man compares with others who are competing with him for admission to your school.

Report of Applicants and Applications Made for Admission to the 1933 Freshman Class of Seventy-nine Medical Schools*

FRED C. ZAPFFE
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Chicago, Illinois

This research was begun in 1926 and was continued for four years. It was taken up again in 1932, continued in 1933 and is under way for 1934. Reports thereon were published in the JOURNAL of the Association.[1]

Not until this research was made were any data available on the numbers of applicants for admission to medical schools nor the numbers of applications made by them. The object of the study was, furthermore, to secure information as to acceptances and rejections, based on premedical preparation, and how many of the accepted applicants entered a medical school as it was evident from other studies that many more students were accepted than matriculated, the discrepancy being, usually, about 13 per cent. Thus far, no attempt has been made to ascertain whether this 13 per cent made application again in the following year. It could be done, but the task is an enormous and expensive one, and the question might be raised whether it is worth the cost.

The study has been a valuable one in many ways, especially in supplying information as to whether certain applicants who denied having previous or other applications had really done so, and what their fate had been year by year. Some medical schools have submitted a list of their freshman class for a check up on this point. They have found it worth while. Foreign medical schools have made use of these data in taking action on applicants from the United States. These files have been put to many good uses and are susceptible for other use.

It has often been stated that applicants were being denied admission because of lack of sufficient physical space and teaching facilities. This study has definitely shown that this is not true because, as stated, 13 per cent more applicants are accepted than matriculate subsequently. Furthermore, more than 60 per cent of those who apply are accepted. This selection is based on many factors, the principal factor being the student's scholastic record; second, his standing in the aptitude test; third, the personal interview, and, fourth, various psychological tests employed by medical schools.

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*This study is one of the projects of educational research sponsored by the Association of American Medical Colleges, the cost being an item in the annual budget.

1. 1927: Apr., p. 97; 1928: July, p. 193; 1929: Apr., p. 97; 1930: Mar., p. 65; 1933, Mar., p. 65

The belief that more in point of time preparation in college would be a large determining factor for acceptance seems to prevail among these applicants. Since this item has been the subject of research each year has shown that fewer applicants presented the minimum requirement for admission—two years or 60 college hours—and more offered a bachelor's degree, despite the fact that the 60 hours requirement is the prevailing one and only one medical school demands the bachelor's degree for admission.

The first year this study was made (1926) has been designated in economic discussions a "normal" year in business. In that year, 10,006 applicants made 20,093 applications. With the oncoming wave of prosperity these numbers gradually became larger. In the so-called "peak" year of prosperity, 1929, the number of applicants had increased to 13,655. They made 31,749 applications.[2]

At this time the study was discontinued. In 1932 it was deemed desirable to resume it in order to ascertain what the effect of the "depression" on these figures might have been. Contrary to belief, there was only a very small lessening of the numbers of applicants and of applications made by them. In 1933, the nadir of the "depression", these figures were only slightly less than in 1932. The figures for the six years of this study are given in table 1.

TABLE 1. DATA ON TOTALS FOR THE SIX YEARS, 1926-1929, 1932-1933, ON WHICH THIS STUDY IS BASED.

	1926-27	1927-28	1928-29	1929-30	1932	1933
No. applications	20,093	23,595	28,998	31,749	31,429	29,940*
No. applicants	10,006	11,287	12,420	13,655	12,280	12,128
Applicants accepted	6,420	6,496	6,974	7,035	7,357	7,578*
Applicants refused	3,586	4,523	5,446	6,620	4,923	4,585

*Data on students making 235 applications to one medical school not available owing to loss of cards by fire. The 35 accepted students enrolled in 1933 freshman class are included in figures of "Applications" and "Applicants accepted."

NOTE: Of the 7,578 applicants accepted, only 6595 matriculated in Fall of 1933.

The numbers of accepted applicants has steadily increased since 1926. In 1933, 20 per cent more applicants were accepted than in 1926. More applicants were accepted in 1933 than in any previous year. The number making only one application has increased by only 20 in 1933 over 1932, whereas the number of multiple applicants has fallen off by 150 in 1933 from the number applying in 1932.

Sixty per cent of all applicants made only one application, and 60.9 per cent of them were accepted. Of the multiple applicants, 63.9 per cent were accepted. Of the 12,128 applicants, 62.1 per cent were accepted. Details are shown in table 2.

Table 3 shows the figures by colleges of applications made and the action taken, also the number of matriculants to the freshman class of each

2. These figures include several Canadian schools.

school. In each instance, many more applicants were accepted than were eventually enrolled in the class.

In the main, this table is intended to present "action taken" on applications. However, it correlates closely with the action taken on applicants. It also gives the numbers of applications received by each of the medical schools participating in the study. Columns 1, 2 and 5 are interesting as they present, respectively, the figures on repeating students applications

TABLE 2. SUMMARY OF TOTALS OF APPLICANTS AND APPLICATIONS AND DISPOSITION.

Number of applicants	12,128*	
Number of applications	29,705	
Number of single applicants	7,269	(60.0%)
Accepted	4,434	(60.9%)
Rejected	2,835	(39.1%)
Number multiple applicants	4,859	(40.0%)
Accepted	3,109	(63.9%)
Rejected	1,750	(36.1%)
Number of applications	22,436*	
Total number applicants accepted	7,543	(62.1%)
Total number applicants rejected	4,585	(37.9%)

*Does not include data on number of applicants making 235 applications to medical college whose records were destroyed by fire.

and those who wished to repeat but were not accepted. Some of these are duplications, as those not accepted by one or more schools may have been accepted by some other school or schools. Reliable data on repeaters will be given later in the year in the study of student accomplishment.

In order that the headings of the columns in this and subsequent tables will be intelligible, the application card used in this study is reproduced herewith.

School of Medicine.....

Name of Applicant.....

Address of Applicant.....

I. Credentials satisfactory quantitatively
   1. Accepted, matriculating for first time.
   2. Accepted, repeating freshman year.
   3. Refused because class full.
   4. Refused because of personality or poor scholarship.
   5. Refused because of unsatisfactory work at another medical school.

II. Credentials examined and found inadequate quantitatively.
   1. To meet requirements of this school.
   2. To meet minimum requirements of A.A.M.C.

III. Credentials not submitted or examined. (No action taken).

IV. Premedical preparation.
   1. If a graduate, what degree did applicant have?.....
   2. If not a graduate, how many years of college work did applicant have? .....

To conserve time and lessen labor for the colleges reporting in this study, cards with insufficient data noted on them have not been returned for amplification. In such cases, an entry was made in the column headed "Not stated." It always applies to the premedical preparation. In some cases it was possible to supply the missing data by reference to other cards, if the particular applicant was among the multiples. Usually, however, this was not possible as many cards were those of single applicants. The importance of giving full information in each case is, therefore, stressed.

TABLE 3. DATA BY COLLEGES ON TOTAL NUMBER OF APPLICATIONS MADE AND ACTION THEREON (MEN AND WOMEN)

School	I					II		III	Accepted	Rejected	Total	Registered in 1933 Freshman Class
	1	2	3	4	5	1	2					
Alabama	96		40	269					96	309	405	73
Arkansas	57	11	31	7	1	10		3	68	52	120	59
Med. Evangelists	165	1	71	2		8		1	166	82	248	126
Stanford	80		71	3				5	80	79	159	60
California	78		3	99		21		17	78	140	218	61
So. California	71	1	57	26	5	32		16	72	136	208	56
Colorado	58	3		25	1	2	4	10	61	42	103	52
Yale	61		239	87		5		54	61	385	446	53
Georgetown	197	1	2	568	16	23	39	50	198	698	896	126
Geo. Washington	128		54	252	3	27	1	114	128	451	579	78
Howard	85		46			9	28	28	85	111	196	47
Emory	71	5	92	47				30	76	169	245	64
Georgia	47		19			1	1	1	47	22	69	40
Loyola	184	16	4	69	12	15		80	200	180	380	158
Chicago University	222		183	62		4			222	249	471	120
Illinois	338	4	5	86		30		18	342	139	480	176
Northwestern	193	3	306	18		12	2	328	196	666	862	124
Chicago M. School	75	4		4	1	13		5	79	23	102	53
Indiana	152	1	40	145	7	4	44	4	153	244	397	140
Iowa	113	3	10	33		6	21	1	116	71	187	101
Kansas	90		41	41		1	12	34	90	129	219	75
Louisville	144	5	4	379	1	4		49	149	437	586	93
Tulane	219	4	54	17	9	22	38		223	140	363	134
Louisiana	110	22	13	95	25		12	3	132	148	280	95
Johns Hopkins	119		13	107		53			119	173	292	72
Maryland	154		268	125	6	52		59	154	510	664	137
Boston	96		59	106				3	96	168	264	70
Harvard	163		282	150		1	6	7	163	446	609	125
Tufts	209	2	207	178	4	50	31	46	211	516	727	130
Detroit	96	10	3	7	1	15		1	106	27	133	90
Michigan	168		107		4	237		10	168	358	526	117
Minnesota	142		55	17		35	1	33	142	141	283	100
Mississippi	32		19	56	2	1		25	32	103	135	28
St. Louis	279		168	520	29	4	3	35	279	759	1038	167
Missouri	45	2	1	11			2	2	47	16	63	40
Washington	114	2	90	121	4	29	7	30	116	281	397	83
Creighton	125	3	2	42	1	3	3	17	128	68	196	85
Nebraska	124	6	42	15	1	11		12	130	81	211	99
Dartmouth	20	2	24	40	10	3		44	22	121	143	21
Albany	56		7	235	7	29	3	63	56	344	400	33
Columbia	208		156	552	1	11			208	720	928	112
Cornell-New York	121		129	476	7	1		39	121	652	773	59
Cornell-Ithaca	39		20	45		1	1		39	67	106	26
Long Island	110		229	381	2	16	2	378	110	1008	1118	109
N. Y. Homeopathic	106	1	344	312	3			35	107	694	801	97
Syracuse	63	1	397	2	4			60	64	463	527	50
New York U.	215		221	313		6		4	215	544	759	158
Buffalo	100	4	394	95	12	7	1	360	104	869	973	77
Rochester	64		94	149	4	1			64	248	312	46
Duke	98		36	401				42	98	479	577	60

TABLE 3—Continued

School	I					II		III	Accepted	Rejected	Total	Registered in 1933 Freshman Class
	1	2	3	4	5	1	2					
North Carolina	42		4	32		13			42	49	91	33
Wake Forest*	35							1305	35	200	235	35
North Dakota	49		1	6		2	1	134	49	144	193	42
Ohio State U.	99	7	96	54	6	17	1	16	106	190	296	100
Eclectic Med.	58	7	10	5	16	16		104	65	151	216	38
Cincinnati	121		54	41	4	32	1	7	121	139	260	90
Western Reserve	113	2	264	113	1	21		31	115	430	545	81
Oklahoma	61	11	5	35			7		72	47	119	65
Oregon	92		92	23		22		18	92	155	247	63
Hahnemann	302		183	13	1	2	1	265	302	465	767	155
Jefferson	223		53	236	9	20			223	318	541	159
Temple	174		476	287	8	28	4		174	803	977	113
Pennsylvania	171		729	9	1	8		10	171	757	928	129
Pittsburgh	73		156	29		11		2	73	198	271	67
Woman's Medical	47	3		4		6	5	24	50	39	89	30
South Carolina	57	4	134	6	6		40	53	61	239	300	42
South Dakota	39		5	12	3	1		37	39	58	97	30
Meharry	89	7	1			31		2	96	34	130	45
Tennessee	133	1	17	46	1	1	1		134	66	200	122
Vanderbilt	69		5	232	3	17	5	40	69	302	371	51
Baylor	129	1	59	5	8	5			130	77	207	122
Texas	103	3	10	49		1	4	6	106	70	176	100
Utah	37		22			7		4	37	33	70	34
Vermont	60	5	17	24	1	1		25	65	68	133	57
Med. Coll. Virginia	134	11	109	57	5		8	23	145	202	347	81
U. of Virginia	77		48	120		2	6		77	176	253	72
West Virginia	98	3	187	8	2	8		28	101	233	334	82
Wisconsin	115		13	58		4			115	75	190	104
Marquette	141	1	132	63	6	32	1	12	142	246	388	98

It is of considerable interest to know what the premedical preparation of these applicants was. This is shown in table 4. However, the information is given in this table on applications made, not on applicants. A comparison of this table with the results of another study, that of entrance credentials of individual students, shows a close correlation between the two.

In the summary appended to this table are given the figures for the numbers of applications made by each group, according to their premedical preparation, the percentage on the basis of total number of applications made, and also the percentage of applications accepted in each group. For instance, the 2,921 applications made by applicants with from two to three years of college work, constituted 9.8 per cent of the whole number of applications; 53.2 per cent of these applications were accepted.

*Fire destroyed the Administration Building, hence details are not available.

In tables 5 and 6 are shown the data on the applicants as to acceptance and rejection on the basis of premedical preparation. Table 5 presents details.

TABLE 4. ANALYSIS OF ACTION TAKEN ON ALL APPLICATIONS ON BASIS OF PREMEDICAL PREPARATION.

Action taken	2 to 3 years	3 to 4 years	4 or more years	A. B.	B. S.	Other degrees	Not stated	To-tals
I.								
1	1524	2481	516	2500	1917	74	13	9025
2	32	34	4	48	30	1	2	151
3	291	1776	631	1988	2810	91	71	7658
4	641	2103	648	2003	2512	71	163	8141
5	20	32	18	78	57	1	61	267
II.								
1	233	297	145	222	170	28	56	1151
2	105	84	42	45	52	15	21	364
III.	75	421	125	437	707	22	1161	2948
Totals	2921	7228	2129	7321	8255	303	1548	29705
% of total No. applications	9.8	24.3	7.0	24.6	27.7	1.0	5.3	

SUMMARY

2 to 3 years of preparation	2921	9.8%
Accepted	1556	53.2%
3 to 4 years of preparation	7228	24.3%
Accepted	2515	34.6%
4 or more years of preparation	2129	7.0%
Accepted	520	24.4%
A. B. degree	7321	24.6%
Accepted	2548	34.6%
B. S. degree	8255	27.7%
Accepted	1947	23.5%
Other degrees	303	1.0%
Accepted	75	24 %
Preparation not stated	1563	5.3%
Accepted	15	0.9%
No degree	12,278	41.3%
Accepted	4638	37.8%
Degrees	15,879	53.7%
Accepted	4570	28.5%
Not stated	1563	5.3%
Accepted	15	0.9%

TABLE 5. ACCEPTANCES AND REJECTIONS OF APPLICANTS ACCORDING TO LENGTH OF PREMEDICAL PREPARATION.

	Single Applicants accepted	Single Applicants rejected	Multiple Applicants accepted	Multiple Applicants rejected	Totals
Less than 1 year	0	3	0	0	3
1—2 years	2	38	1	4	45
2—3 years	1223	554	261	163	2201
3—4 years	1419	805	698	462	3384
4 or more years	247	128	142	128	645
A. B. degree	898	402	1032	418	2750
B. S. degree	595	365	952	544	2456
Other degrees	33	45	22	17	117
Not stated	17	495	2	13	527
Totals	4434	2835	3109	1749	12128

In table 6, are given the percentages of those accepted in each group and also the percentages making application. These tables demonstrate that applicants are, for one reason or another, deeming it wise to take more than two years of college work, but the study of student accomplishment which has been made since 1928 shows that the number of students dropping out of the class at the end of the first year has not been effected by spending more years in college. The percentage has remained virtually the same. About 14 per cent of the freshmen drop out at the end of the year.

TABLE 6. PERCENTAGE OF APPLICANTS ACCEPTED ACCORDING TO PREMEDICAL PREPARATION AND PERCENTAGE OF TOTAL NUMBER MAKING APPLICATION.

2—3 years, accepted	18.4%	applied 18.2%
3—4 years, accepted	28.4%	applied 27.2%
4 or more years, accepted	5.2%	applied 5.3%
A. B. degree, accepted	25.6%	applied 22.8%
B. S. degree, accepted	20.5%	applied 20.3%
Other degrees, accepted	0.8%	applied 0.9%
Not stated, accepted	0.3%	applied 4.3%

Reference to the application cards for 1932 has shown that many of the applicants who failed of acceptance by some medical school in 1932, applied again, usually in multiples, in 1933. One applicant who made more than twenty applications in 1932, without securing an acceptance, although he had had three years of college work, remained in college another year, was given a bachelor's degree, made more than twenty-five applications in 1933, and was accepted by one school. Inquiry elicited the fact that he had not matriculated for financial reasons. His request to be included in the roster of the 1934 freshman class was denied. He has since

TABLE 7. DETAILS ON ACCEPTED APPLICANTS AND APPLICATIONS ACCORDING TO PREMEDICAL PREPARATION.

	Applicants	Accepted	Applications	Accepted
2 to 3 years preparation	2201	1484	2921	1556
3 to 4 years preparation	3384	2117	7228	2515
4 or more years preparation	645	389	2129	520
A. B. degree	2750	1930	7321	2548
B. S. degree	2456	1547	8255	1947
Other degrees	117	55	303	75
Not stated	527	19	1548	19

then made application to a British school but was rejected. He is now making application again in our own schools. His fate is not yet known. This is only one instance in which the value of these cards is definitely shown.

Table 7 presents a summary of applicants and applications and acceptances in each case.

Tables 7 and 8 present the data on the women applicants and applications made by them.

TABLE 8. DATA BY COLLEGES ON APPLICATIONS MADE BY WOMEN.

	I					II			
School	1	2	3	4	5	1	2	III	Totals
Alabama	1								1
Arkansas	3	2				1			6
Med. Evangelists	8		5						13
Stanford	2		4						6
California	13			6		1			20
So. California	2		5			1		1	9
Colorado	1								1
Yale	13		12	3		1		1	30
Geo. Washington	8			3				1	12
Howard	2		2			1		1	6
Georgia			1						1
Loyola	6		1	1		1		1	10
Chicago U.	14		6						20
Illinois	20	1		5		1			27
Northwestern	6		5				2	5	18
Indiana	7		1	3		2	4		17
Iowa	6			1		1	2		10
Kansas	3		1	1					5
Louisville	3	1	1	2			3		9
Tulane	3		2			1	5		11
Louisiana	5			1			3		9
Johns Hopkins	14			3		2			19
Maryland	3		1					3	7
Boston	5			1					6
Tufts	10			2	1	2	1	1	17
Detroit	2								2
Michigan	11		2		2	2			17
Minnesota	3								3
Missouri	2								2
Washington	4			1				1	6
Nebraska	1		1						2
Albany	2			1	1	2	1		7
Columbia	19		22	7		1			49
Cornell	19		13	33				1	66
Long Island	6		4	7		1		5	23
New York Homeop.	8		7	7				1	23
Syracuse	3		4		1				8
New York University	11		11	6					28
Buffalo	3	1	4	3	1			5	17
Rochester	2		2	5					9
Duke	5			4					9
North Dakota	1							1	2
Ohio	4		1				1		6
Eclectic							1		1
Cincinnati	8		2			1			11
Western Reserve	6		6			1		1	14
Oklahoma	2		1						3
Oregon	5		2						7
Temple	8		11			2			21
Pennsylvania	6		16						22
Pittsburgh	3		5	1					9
Woman's	46	3	1	4		3	6	21	84
So. California	2	1	1				6		10
South Dakota	2							2	4
Meharry	1	1				3			5

TABLE 8—Continued

School	I 1	2	3	4	5	II 1	2	III	Totals
Tennessee	9			1					10
Vanderbilt	3			3			2	1	9
Baylor	3				1				4
Texas	8	1	2	2				1	14
Utah	1					1			2
Vermont	3			1				2	6
Med. Coll. Virginia	3			2	1			1	7
Virginia	2		5	1					8
West Virginia	2		1						3
Wisconsin	9			1					10
Marquette	2								2

SUMMARY OF DATA ON WOMEN APPLICANTS.

Total women applicants	507	
Total women applications	833	
Number single applicants	355	
Number single applicants accepted	200	(56.3%)
Number multiple applicants	152	
Number multiple applicants accepted	116	(76.3%)
Number multiple applications	478	
Number multiple applications accepted	210	(43.9%)
Total number applications accepted	410	(49.4%)
Total number applications rejected	423	(50.6%)
Total number applicants accepted	316	(62.3%)
Total number applicants rejected	191	(37.7%)

There has been a falling off both in numbers of applicants and applications made by women. Only 507 women made application in 1933; 316, or 62.3 per cent, were accepted. There are not at hand any data to account for these lower figures for the women applicants.

In 1933, 833 applications were made by women; 999 in 1932. In 1929, the women made 801 applications. It is possible that some of the women applicants have been overlooked because of failure to identify the name as being feminine, but if that did happen, the number missed is very small, not large enough to effect the data in any way.

Of the 833 applications made in 1933, 410, or 49.4 per cent were accepted, as against 47.9 per cent in 1932 and 68.4 per cent in 1929.

Table 9 presents the data on the geographic distribution of the total number of applicants, single and multiple, for admission to medical schools in 1933 according to states and territories of the United States and foreign countries.

It will be noted that New York State furnished the greatest number of applicants, 21.5 per cent of the total number. With very few exceptions, New York City was the place of residence of these applicants. The number of applicants for New York State was more than twice the number applying from any other state. Pennsylvania came next with 9.7 per cent, and Illinois third, with 7.1 per cent. The six states having more than

TABLE 9. GEOGRAPHIC DISTRIBUTION OF 12,128 APPLICANTS.

	Single applicants	Multiple applicants	Total
New York	1009	1591	2600
Pennsylvania	557	618	1175
Illinois	670	197	867
Ohio	384	309	693
California	357	228	585
New Jersey	206	338	544
Massachusetts	200	223	423
Indiana	289	54	343
Michigan	224	92	316
Texas	231	77	308
Wisconsin	218	62	280
Missouri	162	54	216
Connecticut	79	136	215
Virginia	157	39	196
Iowa	161	33	194
Nebraska	132	42	174
Kentucky	124	46	170
Maryland	127	35	162
West Virginia	119	40	159
Kansas	125	33	158
Minnesota	127	31	158
Tennessee	143	14	157
Oklahoma	121	30	151
Georgia	104	46	150
Louisiana	132	16	148
Mississippi	93	28	121
North Carolina	81	38	119
South Carolina	95	24	119
Washington	58	47	105
District of Columbia	81	23	104
Alabama	67	33	100
Oregon	67	24	91
Arkansas	76	10	86
Colorado	75	8	83
North Dakota	65	10	75
Rhode Island	22	47	69
Florida	47	24	71
Utah	40	16	56
Maine	21	30	51
Vermont	43	4	47
South Dakota	34	4	38
New Hampshire	11	17	28
Idaho	13	14	27
Hawaii	10	15	25
Porto Rico	12	10	22
Delaware	15	6	21
Montana	9	9	18
Canada	11	4	15
Arizona	11	1	12
New Mexico	7	3	10
Nevada	6	3	9
Jamaica, B. W. I.	4	3	7
Wyoming	4	2	6
China	3	2	5
Germany	5		5
Korea	2	2	4
Cuba	1	2	3

TABLE 9—Continued

	Single applicants	Multiple applicants	Total
India	1	2	3
Panama	1	2	3
Brazil	2		2
Costa Rica	2		2
Egypt	1	1	2
Honduras	2		2
Mexico	2		2
Philippines		2	2
Dominican Republic	1	1	2
Alaska	1		1
Argentina	1		1
Belgium	1		1
British West Indies	1		1
Columbia	1		1
Czechoslovakia	1		1
England	1		1
New Zealand	1		1
Nicaragua	1		1
Palestine		1	1
Persia		1	1
Siam		1	1
Spain	1		1
Sweden		1	1

NOTE: Every state is represented and also Hawaii, Porto Rico, Philippines, Panama, Alaska, Cuba and 24 foreign countries.

500 applicants each furnished 6,464, or 53.3 per cent, of the whole number (12,128) of applicants.

According to the population of these six states, the 1930 census lists them in the same order as they appear in table 9. The total population of these six states is 46,215,392, about 38 per cent of the population of the United States and its possessions, yet they furnished 53.3 per cent of the whole number of applicants for admission to medical schools in 1933!

The disproportion between population and applicants is greatest in New York State and becomes still greater if it is remembered that nearly all of the applicants from that state were residents of one city whose population is estimated at about 7,000,000. The population of the state is estimated at 12,588,000.

Pennsylvania, with a population of 9,631,350, furnished 9.7 per cent of the applicants; Illinois, with 7,630,654 population, furnished 7.1 per cent of the applicants; Ohio, with 6,646,637 population, furnished 5.7 per cent of the applicants; California, with 5,677,351 population, furnished 4.8 per cent of the applicants, and New Jersey, with 4,041,334 population, furnished 4.5 per cent of the applicants.

These figures are somewhat startling when viewed from an economic basis because they exceed greatly the need for professional replacements in

these states. It is hardly possible to set forth any one reason which might account for the desire to enter medicine on the part of the applicants. There is much room for argument.

Inasmuch as about 25 per cent of the entering classes in medical schools will fail to graduate, it would be interesting if data were at hand which would show whether these failures could be correlated with the data on applicants so far as residence is concerned. Perhaps, there are more failures to graduate among the New York group than among others, but in the absence of data bearing on this point, one cannot even conjecture. However these data will be significant when limitation of students and graduates is the subject for discussion.

Table 10 sets forth the data on the multiple applicants as numbers of applications made and acceptance.

The largest number of applications made by one applicant in 1933 was 41. This applicant had one acceptance, by a medical school in his own state (not a state school). The greatest number of applications made by one applicant in 1932 was 34—with two acceptances.

No attempt has been made to ascertain the fate of the multiple applicants in medical school; whether they made a good or a bad record; whether they passed or failed. While such data could be secured, the labor involved is too great a tax on the small working force which would have to make the correlation, but if the study is worth while, proper provision for it could be made.

As in 1932, about one fourth of the rejections were reported as "class full." The question has been raised whether these figures are reliable. Do they represent "no action" taken on the basis of "class full," regardless of whether or not these applicants could have qualified had there been room for them, or do they include a group of applicants on whom it was preferred not to make a classification under I-4 (refused for poor personality or scholarship) for one reason or another? The greatest number of rejections are listed under this head, I-4. It would seem that in most, if not all, of the "class full" cases no action was taken; hence the check should have been made under III, "no action taken."

The cooperation of the medical schools participating in this study is greatly appreciated. Those schools receiving many applications are taxed heavily by the additional demand made on the clerical force by preparing records for these cards—but the labor has not been for naught. It has made it possible to furnish the information presented herewith.

TABLE 10. DETAILS ON 4859 MULTIPLE APPLICANTS AS TO NUMBER OF APPLICATIONS MADE, ACCEPTANCES AND REJECTIONS.

1798 made 2 applications=3596
590 had no acceptances.
1208 had 1598 accpetances.
1 acceptance—818
2 acceptances—390

920 made 3 applications=2760
304 had no acceptances.
616 had 947 acceptances.
1 acceptance—335
2 acceptances—201
3 acceptances— 80

583 made 4 applications=2332
182 had no acceptances.
401 had 681 acceptances.
1 acceptance—215
2 acceptances—112
3 acceptances— 54
4 acceptances— 20

385 made 5 applications=1925
143 had no acceptances.
242 had 419 acceptances.
1 acceptance—124
2 acceptances—74
3 acceptances—31
4 acceptances—11
5 acceptances— 2

257 made 6 applications=1542
100 had no acceptances.
157 had 276 acceptances.
1 acceptance—89
2 acceptances—32
3 acceptances—26
4 acceptances— 5
5 acceptances— 5

197 made 7 applications=1365
92 had no acceptances.
105 had 167 acceptances.
1 acceptance—68
2 acceptances—22
3 acceptances— 9
4 acceptances— 2
5 acceptances— 4

136 made 8 applications=1104
57 had no acceptances.
79 had 126 acceptances.
1 acceptance—43
2 acceptances—19
3 acceptances—13
4 acceptances— 3
7 acceptances— 1

91 made 9 applications=819
38 had no acceptances.
53 had 76 acceptances.
1 acceptance—39
2 acceptances— 8
3 acceptances— 5
6 acceptances— 1

106 made 10 applications=1060
59 had no acceptances.
47 had 76 acceptances.
1 acceptance—27
2 acceptances—13
3 acceptances— 5
4 acceptances— 2

71 made 11 applications=792
35 had no acceptances.
36 had 63 acceptances.
1 acceptance—18
2 acceptances—14
3 acceptances— 1
4 acceptances— 1
5 acceptances— 2

59 made 12 applications=708
34 had no acceptances.
25 had 40 acceptances.
1 acceptance—16
2 acceptances— 5
3 acceptances— 3
5 acceptances— 1

49 made 13 applications=637
26 had no acceptances.
23 had 30 acceptances.
1 acceptance—16
2 acceptances— 7

TABLE 10—Continued

41 made 14 applications=564
17 had no acceptances.
24 had 44 acceptances.
1 acceptance—15
2 acceptances— 3
3 acceptances— 2
4 acceptances— 3
5 acceptances— 1

30 made 15 applications=450
16 had no acceptances.
14 had 19 acceptances.
1 acceptance—10
2 acceptances— 3
3 acceptances— 1

25 made 16 applications=400
13 had no acceptances.
12 had 17 acceptances.
1 acceptance— 9
2 acceptances— 1
3 acceptances— 2

22 made 17 applications=374
8 had no acceptances.
14 had 23 acceptances.
1 acceptance—10
2 acceptances— 3
7 acceptances— 1

11 made 18 applications=198
5 had no acceptances.
6 had 13 acceptances.
1 acceptance—4
2 acceptances—1
7 acceptances—1

14 made 19 applications=266
5 had no acceptances.
9 had 18 acceptances.
1 acceptance—5
2 acceptances—2
3 acceptances—1
6 acceptances—1

15 made 20 applications=300
7 had no acceptances.
8 had 21 acceptances.
1 acceptance—4
4 acceptances—3
5 acceptances—1

9 made 21 applications=189
9 had 12 acceptances.
1 acceptance—6
2 acceptances—3

9 made 22 applications=198
4 had no acceptances.
5 had 6 acceptances.
1 acceptance—4
2 acceptances—1

5 made 23 applications=115
2 had no acceptance.
3 had 9 acceptances.
3 acceptances—3

2 made 24 applications=48
No acceptances.

2 made 25 applications=50
1 had no acceptance.
1 had 1 acceptance.

5 made 26 applications=130
2 had no acceptances.
1 acceptance—3

1 made 27 applications=27
1 acceptance.

6 made 28 applications=168
5 had no acceptance.
1 had 1 acceptance.

1 made 29 applications=29
No acceptances.

4 made 30 applications=120
1 had no acceptances.
3 had 4 acceptances.
1 acceptance—2
2 acceptances—1

1 made 31 applications=31
1 acceptance.

1 made 32 applications=32
1 acceptance.

2 made 33 applications=66
1 had no acceptances.
1 had 2 acceptances.

1 made 41 applications=41
1 acceptance.

Problems of the Medical Graduate

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From my own experiences as an undergraduate; from conversations with classmates and fellow interns; from observations of their course of action and careers subsequent to graduation; from observations of present-day medical practice; from discussions with young medical men of my own age, graduates of various schools on this continent and abroad; from talks with present undergraduate students here in my own classes and elsewhere; from personal attempts to keep abreast of current medical developments; from observations of the current economic trends and from talks with intelligent members of the lay public, I have arrived at certain definite personal conclusions as to the future trends of medicine. These conclusions may be summarized as: first, that the present trend of medical practice is now, and will continue to be in the future, toward specialization; secondly, that, whereas in the past the problem confronting the individual consisted largely of the decision as to whether he definitely did or did not wish to study medicine, the present problem not only includes this primary decision, but also the later decision as to which particular field of medicine he wishes to follow; and thirdly, that medical education should be revised in recognition of the trend to specialization. A frank appraisal of these problems would, it seems to me, be of help as a guide to the prospective plans of the graduate and undergraduate, and might possibly merit constructive comment and action on the part of the leaders of our profession.

The realization of members of the medical profession that the phenomenal advances in medical knowledge, which took place during the past century, had expanded the scope of medicine to such a degree that no one individual could any longer possibly hope to master it all, laid the basis and prepared the soil for the growth of specialties in the present century. With the partial divisin of the broad field of medicine into smaller compartments, with an increasingly numerous group of enthusiasts in each compartment, the scope of each was, and is, being rapidly broadened and deepened, made increasingly complex and difficult of mastery. Thus, the present trend in medical practice tends toward accentuation of the lines of demarcation between the various existing medical specialties and the birth of new ones. This trend, I am convinced, will continue for many years to come.

I believe that the widespread practice of medicine, as exemplified in

the justly honored and highly respected "old-time general practitioner," is declining just as rapidly as Death calls the senior members of the present medical profession, and will be, in the larger centers, a thing of the past when the members of my generation and those who trod on our heels occupy the places thus vacated. It is, of course, true that in the smaller communities and in the predominantly rural districts the "general practitioner" will remain a necessity. Already, however, he is being, and will continue to be, pushed further and further back from the larger centers, as more and more of his domain of sickness is taken from his hands by unquestionably better trained younger fellow practitioners, who have "specialized" in one field or another. This will continue until, finally, so little of the field is left for him to till, that either economic considerations will force his withdrawal, or else, sensing the trend of the times, he, too, will select a field, and, possibly without competent training, will set himself up as a "specialist" with the hope that the public will not distinguish between them.

The true general practitioner will, in the years to come, if he is honest, be forced to admit with ever increasing frequency when faced with a difficult problem in obstetrics, in surgery, in otolaryngology, in pediatrics, to mention but a few of the modern fields of specialty, that there are men better trained than he for the handling of them. In the past, he could condone his acceptance of the responsibility involved with the fact that, even though there were others undoubtedly better fitted than himself for the handling of such a problem, they were made unavailable by distance. Unless he be practicing in an isolated community, no such balm for his conscience will now be available when things go wrong, for, in the very near future, and even now in many localities, reputable physicians intensively trained in the various specialties will, under our modern means of rapid transportation, be readily available. It will become increasingly difficult for a young man of high ideals and ambition willingly to select a field of medical practice in which he will be continually exposed to such blows to his ego. The unavoidable comparison of his own position with the greater professional and worldly success of fellow graduates who were able to obtain special postgraduate training, will, moreover, be a continual source of mental dissatisfaction to him and tend to breed in him a discomforting and harmful sense of inferiority.

The day of universal general practice is on the wane, that of medical specialization on the rise, and foolish is the young graduate of medicine who does not take cognizance of the fact! The tremendous expansion of medical knowledge, the modern tendency to concentration of population in towns and cities and the development of increasingly rapid transportation facilities, appear to be the chief causes of this change. Let him who

doubts the truth of this change in medical practice note the increasing professional and worldly recognition accorded the competent, well trained specialist, as compared with his colleague in general practice; let him survey the present prolific crop of medical publications on file in any medical library; let him attend any large medical convention and note the segregation of the members of his profession into groups with kindred interests in one or another of the special fields of medicine; let him, as a true general practitioner, wander from one specialty group to another, interested in aspects of all, yet with the lonesome feeling that he "belongs" to none; let him listen to the papers and discussions of one of these specialized groups, frequently bewildered by the new and ever-changing nomenclature in which they are couched, and based on developments in which he has had, in many cases, no previous training.

We may regret the decline of the general practitioner, as we do many other customs and institutions of the past, but, sympathize though we may, it seems futile and unwise to do ought but recognize the inevitable. That his passing does constitute a very real loss to the profession no thoughtful person could deny, but I must confess that I fail to see wherein the losses overbalance the gains. It is often said, for example, in criticism of the modern physician that he tends to become an impersonal specialist treating but his own narrow field, forgetful of "the man" who lies beneath the patient, seeing and interested in him only as a medical problem presented for solution; that he too often fails to see the woods for the trees, being so absorbed in the intricacies of his own specialized field that he overlooks the whole; that he tends to be deficient in the courteous humanities of the older practitioners. I say, that the individual in our profession of whom such may truthfully be said, is one who lacks the fundamental qualities of character desirable in the practice of medicine, be it either in the field of a specialty, or in the field of general practice. It is the invariable human tendency to dwell only on the pleasant features of the past and to subconsciously repress those features which afford less pleasure on reflection.

Such seems to me to be the case with the attitude of many toward "the old-time practitioner." Their virtues were many and obvious, worthy, in their contributions to the honorable traditions of medicine, of the highest honor and respect of the younger men in the profession, but, were there no deficiencies, no drawbacks in the practice of medicine then as compared with the present! I fancy "the old-time practitioner" would be the first to answer in the affirmative! After all the character of men today are much as they were in the days of our fathers. Men of a broad humanity, of sterling character, of courtly gentleness will exercise these innate quali-

ties in the practice of their specialties, in their contacts with their patients, even as did our fathers in general practice, and will, in addition, have available, for the alleviation of suffering, the additional skill which the progress of medical specialization has made possible.

The medical graduate of today, and I speak from personal experience, leaves an undergraduate training at our best schools with a head crammed with bits of medical knowledge covering the whole field of medicine, but, in the eyes of his teachers, of an increasingly large portion of the general public and of himself, master of none. He and his family have made difficult financial sacrifices that he might enter his chosen profession. He has denied himself many of the pleasures of life, open to men of his own age in other pursuits, that such might be the case. He has invested more than one-third of his normal life expectancy period to obtain his medical training, and, in his middle or late twenties, he finds himself facing the world with his coveted M.D. degree. Imagine the shock to his high expectations, then, when he realizes that, possessing only a fund of general medical knowledge, he faces, in actual medical practice, a highly competitive field in which specialized, not general knowledge, is the criterion of both professional and worldly success. Granted that his undergraduate training is, in the estimate of his teachers, much superior to theirs in the past, it proves of small comfort, when he realizes that the trend to medical specialization, which has occurred in the meantime, leaves him relatively much poorer equipped for professional success in this generation.

At first, somewhat puzzled at the unexpected situation confronting him, the capable, ambitious and idealistic medical graduate is later apt to be somewhat irritated with a system of medical education which leaves him, if he wishes to enter active practice, with but two alternatives on graduation. The first alternative is, on realization of the trend to specialization, to select the specialty which appeals to him most, and then to seek those centers where training in such may best be obtained. Thus he finds, that, to achieve the success of which he considers himself capable and with less than which his ambition would not be satisfied, he must spend from three to seven years in postgraduate training to be granted recognition as a competent specialist in the field selected. He finds himself committed to a further period of study which is equal to, or may exceed in time, that of his undergraduate training; which will entail further sacrifices on the part of himself and those interested in his success; which economically can offer him no more than bare living expenses and frequently not even that; which permits no thoughts of marriage or normal family life, and finally, the necessity for which constitutes a deep puzzle to the members of his family, who have, during the undergraduate years, cheerfully made the

necessary sacrifices with the mutually confident hope that the load would be lightened materially on graduation.

The second alternative is that the graduate in medicine, already saddled with debt, conscious of his many obligations to parents and younger members of his family, deprived by economic considerations of any opportunity for further postgraduate training, is forced into active practice. The training he has received equips him for general practice only, and he finds the only openings available are limited to general practice on his own in a small community, or as an assistant to some older well-established practitioner in a larger center. As the years roll by he becomes more and more deeply embedded, the early hope of "going back" for further training is either lost sight of or still seems economically impossible, and he observes his more fortunate classmates, who were able to spend from three to seven years in postgraduate training in a specialty, rapidly pass him by in professional acclaim and worldly recognition.

In the past, the major problem, once the decision to study medicine has been made and the desired training obtained, consisted in the selection of a suitable location for practice. These problems still confront the prospective medical graduate today, but his major problem, as I see it, is not only where he shall practice but in which field of medicine he shall practice. Too often he is so engrossed in the struggle to obtain his degree that he fails to recognize the changing trend of medical practice, in which case he then finds himself, degree in hand, suddenly confronted with this problem. It is one on which a decision must be made promptly if much valuable time is not to be lost. In its bearing on his future happiness it is fully as momentous as his earlier decision to study for the profession of medicine. The existence of such a problem to both the recent graduate and the present undergraduate should, I feel, be given greater recognition, and constitutes, in my opinion, a definite need for readjustments in our present system of undergraduate and postgraduate medical training.

Some Thoughts on Education

The Rector to the savant said
Your methods are insolvent,
Your subject matter seemeth dead,
Your facts are inconsistent.

Mere facts are not philosophy,
Still less an education.
There should be found a better way
Of mental stimulation.

The wise ones say we can and may,
With proper education,
Expect an ideal state some day
To banish tribulation.

But bankrupt science of this date
Is not the proper kind
Of mental food to generate
A healthy state of mind.

Now what we need, is much less greed
For gold, for name or fame.
The cultural subjects are the seed
That foils the grabbing game.

The simple things have had their day,
But why such adulation
Of isolated facts and why
Not seek a real foundation.

A dire disease with hoof and horn
Is rampant on the Campus.
The situation is forlorn
And science does not help us.

The economic side is worse;
It makes us sad and pensive.
Unless we find a generous purse,
Work must be less expensive.

It's not alone the great expense
That chills us to the bone;
But the added fact that science
Bows down to wood and stone.

If all of you would work for fun
And not seek compensation;
The woes of life would all be run
Out in a generation.

Thus spake the seraph and appeared
A very motley throng;
Great men of science all declared
This sophistry is wrong.

—Amicus Curiosus.

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Congress on Medical Education

The annual Congress on Medical Education and Licensure was held in Chicago, February 12 and 13. As always, it was a most interesting and instructive meeting. The papers presented were excellent and contained much food for thought for those concerned with the subjects discussed. The attendance was a most gratifying one and every one present seemed to feel well repaid for having come to the meeting.

As this is being written, the Congress had not yet ended, therefore, further details must be left for later presentation.

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Study of Student Accomplishment

Pursuant to action taken by the Association at the last annual meeting, records of students who attended medical schools for the session 1932-1933 have been sent to the arts colleges in which preparation for the study of medicine was made.

These reports are meeting with an enthusiastic response. The colleges assert that never before have they received such reports. They find them valuable—but many of them voice disappointment that medical schools do not heed reports on students made by the colleges. They find that many students whom they did not recommend for admission to medical school were accepted nevertheless and are to be found among the "failures." It is felt that such cases should not be a discredit to the college.

Some colleges have already taken action as to procedure in the future with reference to acceptance of their students. In not a few instances, definite faculty action has already been taken with respect to how students will be passed on in the future in order that medical schools will have available more information as to a student's ability to enter on the study of medicine. Steps are being taken to discourage, as far as possible, the student who is not deemed fitted to study medicine, and medical schools will, probably, be advised of cases in which the discouragement is not heeded.

The hope that the study will be continued is voiced by nearly every college acknowledging receipt of the records, and many of them ask that the study be extended to all four years of the medical course as it would furnish information not now available.

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Students' Register

At a recent meeting of the Executive Council of this Association, authorization was given to begin the preparation of a students' register which will give information on every student in medical school as to his accomplishment during the four years of the medical course. This information is not now available, although the biographical index or register prepared by the American Medical Association does give information as to medical schools attended but not the information

conveyed by the study of student accomplishment which has been made by the Association of American Medical Colleges since 1928.

The register will give information as to the premedical preparation of the student, his standing in the medical aptitude test, history as to applications made for admission to medical schools, and his performance while in medical school during each of the four years.

Instances have arisen which fully justify the preparation of such a register. It would have much value to medical schools who wish to secure information on any applicant with the least labor and effort, and it would carry the weight of authority as it will be prepared wholly from data furnished by the medical schools to the office of the Association. Liberal arts colleges which prepare students for medical study do not have any way of getting information on how these students carry on during their stay in medical school—nor can this information be secured except by writing to each medical school. If the information is on file in the office of the Association, the medical schools as well as the arts colleges will be spared much labor and fretfulness. Only one report is made to one source from which the information is available to everyone who is entitled to receive it.

The Association has, thus, assumed responsibility for one more function which has been allocated to it by responsible authority.

◆ ◆

Graduates from Foreign Schools

The Louisiana State Board of Medical Examiners has adopted a resolution requiring every physician from a foreign medical school to have, in addition to a foreign diploma, one from a medical college located in the United States and recognized by the board. The regulation was effective December 7.

German Medical Periodicals

It is reported that in response to pressure brought to bear by American librarians, the publishing house of Julius Springer, Berlin, Germany, has made a considerable reduction in the price of its medical periodicals. In a number of instances this reduction amounts to more than one-third of the former price. It is hoped that other German publishers will soon follow this lead in order that American medical school libraries can again subscribe for these important publications whose price has been prohibitive, even for the well financed library.

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The Lament of a Medical Educator

The *Chicago Tribune*, February 13, 1934, quotes Dr. Ray Lyman Wilbur as follows:

"Our students are the most uninteresting of men. They are ignorant of either art or literature. They only read sporting papers and cheap magazines. They do not even know their own language, nor can they spell. They are in fact semi-illiterate."

His ideas might be said to be as follows:

The medical student is to me
As annoying as a bumble-bee
A non-interesting body he
Would benefit at a spelling-bee.

In fact he's semi-illiterate
Of art and literature intestate
Why this is so I will not state
And for the present, but facts relate.

We have stipulated everything
In reversing the course in medicine
But what's the good of such monkeying
If we've crowded culture from the scene.

Art and literature we have lost
The baby with the bath-water tossed
Into a cold and shivering frost,
Which convinces me, we work too fast.

College News

University of Cincinnati College of Medicine

CORRECTION: In the January, 1934, JOURNAL, p. 53, the statement was made that Dr. Clarence Ray had been appointed professor and head of the department of ophthalmology. This should read, "Dr. Clarence King, etc." Dr. Victor Ray, Sr., resigned from this position. Dr. King is his successor.

The late Mrs. Mary Hyndman bequeathed $25,000 to the university to establish the James Gilmour Hyndman Fellowship in Preventive Medicine.

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Manitoba Medical College

The semi-centennial jubilee of the college will be celebrated during the week of May 14-19 with a clinical program in which other Canadian universities will participate. The College of Physicians and Surgeons of Manitoba, the licensing body, will help to defray the cost of the celebration. All meetings will be held in the college on Ballantyne Avenue, Winnipeg.

✦ ✦

University of Chicago Division of the Biological Sciences

The Quaker Oats Company, being interested in clinical experiments leading to the evaluation of irradiated yeast in calcium and phosphorus metabolism, has given $4,500 to the departments of home economics and surgery for the hospitalization and study of rachitic children.

Recently a grant of $3,300 was made to the department of pediatrics for a study of the effect of various physical and chemical factors upon carbohydrate digestion. This sum is now being increased by $800 in order to enlarge the study to include also the effect of various physical and chemical properties upon the protein constituents.

The fourteenth annual report to the Governors of the Institute of Medicine regarding necropsies in the hospitals of Chicago shows the University of Chicago Clinics with an average of 82.4 per cent, second in the list of 60 hospitals which reported to the Institute for 1932.

JESSIE HORTON KOESSLER FELLOWSHIP: This fellowship is offered by the Institute of Medicine of Chicago for the aid of research in biochemistry, physiology, bacteriology or pathology, annually. For 1934 it has been awarded to Dr. Harry A. Davis, graduate of the University of Edinburgh, 1928.

Dr. Davis will do his research on water regulation in the living organism and on the factors influencing extravascular and intravascular fluids in association with Dr. Lester R. Dragstedt in the department of surgery.

Drs. Hastings, Brunschwig and Davis are conducting experiments on the effects of x-rays on malignant neoplastic cells as may be evidenced by changes in cell respiration.

Dr. Walter Hamburger has been appointed clinical professor of medicine. He will serve in the field of cardiology.

Dr. Jos. B. DeLee was recently elected to honorary fellowship in the Edinburgh Obstetrical Society.

Dr. Arno B. Luckhardt was elected to honorary fellowship in the American College of Dentists.

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Johns Hopkins University School of Medicine

Dr. William H. Wilmer will retire as director of the Wilmer Institute of Ophthalmology July 1 to comply with regulations providing that professors leave the

faculty when they reach the age of 70.

Dr. Wilmer has been director of the institute since its establishment, carrying a concurrent appointment as professor of ophthalmology.

The Wilmer institute was inaugurated in 1925, following the completion of a $3,000,000 fund, the income of one third of which serves for the maintenance of the department. The income of the second million is used for the support of beds in the clinic for persons unable to pay, and the third million is devoted largely to the construction and equipment of the necessary buildings for housing the department.

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Harvard Medical School

The creation of an endowed professorship in obstetrics is announced. This chair was established under the will of the late Dr. William Lambert Richardson, professor of obstetrics and dean, who died in October, 1932. The amount of the endowment is $100,000. The first incumbent of this chair will be named later.

Dr. Richardson also gave $40,000 to establish the Jeffrey Richardson Fellowship. The income from this fund will be awarded annually by the faculty of medicine to a deserving student of the medical school who wishes to continue his studies after graduation.

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Ohio State University College of Medicine

The centennial celebration of the college will be held March 1, 2 and 3 on the university campus. The college traces its origin to the Willoughby Medical College established in 1834.

Addresses will be delivered by Dr. Francis Packard, Philadelphia, "History of Medicine;" Dr. Jonathan Forman, Columbus, "History of the College of Medicine;" Dr. George W. Rightmire, president of the university, "The Place of Medical Education in the State University;" Dr. Henry S. Houghton, Chicago, "The Challenge of the Future," and others on professional subjects.

An exhibit will display equipment instruments, books and office furniture used in Ohio during the past century.

The present College of Medicine is the result of mergers of Willoughby, 1834, Starling Medical College, 1848, Columbus Medical College, 1875, Ohio Medical University, 1892, and Starling-Ohio Medical College, 1907.

Dr. Rollo C. Baker, a member of the department of anatomy for many years, has been appointed head of the department to succeed Francis L. Landacre, deceased.

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Loyola University School of Medicine

Dr. Joseph Welfeld has been appointed associate clinical professor in the department of genito-urinary diseases.

Dr. Charles F. Yerger has been promoted to associate clinical professor of ophthalmology.

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University of Louisville School of Medicine

William J. Martin, Jr., clinical assistant in proctology in the University of Louisville School of Medicine, has been appointed to succeed Dr. Hugh R. Leavell as director of the Student Health Center. Dr. Leavell has recently taken up his duties as director of health for the city of Louisville.

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Yale University School of Medicine

The Perkins Scholarship has been awarded to Miss Lena Halpern, third year student. The scholarship, founded in 1914 by the widow of George C. Perkins, is given annually to the student making the best record in scholarship in the basic subjects of the medical and biologic sciences.

School of Medicine
University of Colorado

PROMOTION: To the rank of associate professor: Edward Francis Dean, Casper Frank Hegner and George Byron Packard, surgery; James Angus Philpott, surgery (urology); Ernst A. Schmidt, surgery (radiology); James Melville Shields, ophthalmology.

To the rank of assistant professor: Augustine Santina Cecchini, John Murray Barney, Lorenz William Frank, Constantine F. Kemper, John Gaston Ryan and William Bernard Yegge, medicine; William Matthews Bane and Donald Hunter O'Rourke, ophthalmology; Glen Evan Chesley, surgery; Archibald J. Chisholm and Arthur Hugo Earley, surgery (proctology); Cecil Howard Darrow and Elbert Byron Swerdfeger, otolaryngology.

NEW APPOINTMENTS: Lecturers: T. Leon Howard, surgery (urology); William Rollins Waggener, life insurance and compensation examinations.

The following were promoted to rank of instructor: Theodore Ernest Beyer, Henry Lewis Cooper, Robert Kenneth Dixon and Lewis Sanders Faust, instructor in medicine; John M. Foster, Jr. and William W. Haggart, instructor in surgery; Harold L. Hickey, instructor in otolaryngology; William Wiley Jones, instructor in pediatrics; William Marion Peake, instructor in psychiatry; Lumir Robert Safarik, Raymond James Savage, Thaddeus Perce Sears and James Elwood Weatherford, instructor in medicine

A course in life insurance examinations and workmen's compensation insurance has been put into the schedule of the senior year. This course will consist of three lectures on each subject, requirements and procedure of making reports to life insurance companies; requirements and procedure of making reports under workmen's compensation laws of Colorado. Dr. William R. Waggener, Denver, will conduct the course.

All applicants for admission to the Freshman class in September, 1934, must present 135 quarter hours, or 90 semester hours, of collegiate work, instead of the 90 quarter hours or 60 semester hours required in previous years. The following collegiate subjects are prescribed:

Biology: At least 14 quarter hours including general zoology, 9 quarter hours, and either comparative anatomy or mammalian anatomy, 5 quarter hours.

Chemistry: General inorganic chemistry; at least 12 quarter hours, including 6 quarter hours of laboratory work.

Organic Chemistry: A complete course of at least 9 quarter hours, including 2 quarter hours of laboratory.

Quantitative Analysis: 5 quarter hours.

English: 15 quarter hours, including at least 9 quarter hours in English composition and rhetoric.

Modern language: German (preferred), French or Spanish. At least 15 quarter hours of first year language or 9 quarter hours of second year language.

Physics: A complete course of at least 12 quarter hours, with 3 quarter hours of laboratory.

No entrance conditions are allowed.

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Vanderbilt University
School of Medicine

Dr. W. S. Leathers, dean of the School of Medicine, delivered the De Lamar Lecture to the faculty and students of Johns Hopkins University in Baltimore, Maryland, January 31. The subject of Dr. Leathers' lecture was "An Analysis of the Hookworm Problem in a Southern State."

Dr. Alphonse R. Dochez, professor of medicine at the College of Physicians and Surgeons of Columbia University, delivered the Phi Beta Pi Lecture February 23. The subject of his lecture was "The Etiology of Acute Infection of the Upper Respiratory Tract."

Temple University School of Medicine

Temple University School of Medicine celebrated its fiftieth anniversary during the week of February 11 to 17. The School of Medicine gave an intensive course of lectures, demonstrations and clinics to evaluate the present status of the medical art and its basic sciences.

Dr. J. O. Arnold, professor of obstetrics, addressed the annual meeting of the Medical Society of Franklin County on January 16. His subject was "An Obstetrical Conference on Your Cases and Mine."

Dr. John A. Kolmer, professor of medicine, addressed the postgraduate assemblies of the George F. Geisinger Memorial Hospital, Danville, Pennsylvania, on "Present Status of Biologic Therapy in the Prophylaxis and Treatment of Diseases" and "Methods of Evaluating Compounds Employed in the Treatment of Diseases" and "Methods of Evaluating Compounds Employed in the Treatment of Syphilis and the Amount of Treatment to be Given." Dr. Kolmer was awarded honorary membership in the Academy of Stomatology. An address was also delivered by Dr. Kolmer before the Academy of Medicine of Cincinnati on January 15, on "Pulmonary Disinfection and Immunization."

January 17, 18 and 19, Dr. Kolmer addressed meetings of the Southwest District Medical Association at San Antonio, Texas.

PROMOTIONS: Dr. Pascal F. Lucchesi from demonstrator to lecturer in pediatrics; Drs. James F. Bowman and William N. Crawford, from instructor to demonstrator in pediatrics; Drs. Scott Verrei and Paul B. Bender, from clinical assistant to instructor in pediatrics; Drs. W. Emory Burnett and J. Norman Coombs, from lecturer to associate in surgery; Dr. Nicholas Gotten, from lecturer to associate in neurosurgery; Drs. Harry E. Bacon and Harry Weber from demonstrator to lecturer in proctology.

NEW APPOINTMENTS: Morton J. Oppenheimer, instructor in physiology; Sol Arthur Goldberg, clinical assistant in laryngology and rhinology; Winslow T. Tompkins, instructor in obstetrics; John Hellman Taeffner, clinical assistant in neurosurgery; Elizabeth Humeston and Sidney Weiss, clinical assistant in pediatrics; H. A. K. Mengle, clinical assistant in surgical research; Leon S. Caplan, Lawrence N. Ettelson, Joseph A. Pescatore and Herman Gold, clinical assistant in medicine.

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Duke University School of Medicine

The winter quarter of the school of medicine commenced January 3rd, with 60 students in the first year class, 43 in the second year, 33 in the junior and 27 in the senior class.

Students completing their medical course in 1934 have received internship appointments as follows: J. S. Baker, Mrs. E. B. Easley, F. L. Owens, T L. Peele, E. M. Rucker and A. R. Smith, Duke Hospital; E. W. Brian, R. Z. Query and W. E. Sharpe, Jr., Henry Ford Hospital, Detroit, Mich.; J. H. Cherry, City Hospital, Goldsboro, N. C.; M. C. Cobey and B. R. Kennon, The Johns Hopkins Hospital, Baltimore, Md.; W. F. Farmer, Grady Memorial Hospital, Atlanta, Ga.; J. S. Forbes and S. J. Margolin, Jersey City Medical Center, Jersey City, N. J.; J. R. Wilson, Albany Hospital, Albany, N. Y., and C. T. Wood, St. Vincent's Hospital, Norfolk, Va.

January 26, Dr. George L. Streeter, of the Carnegie Institution, Department of Embryology, Baltimore, Md., gave a lecture on "Fetal Amputations." February 9, Dr. E. F. Lowry, of the United States Navy Recruiting Station, at Raleigh, N. C., delivered a lecture on the subject of "A Medical Career in the

Navy." February 17, Dr. Charles D. Lucas and Dr. Fred W. Stewart, of the Memorial Hospital for the Treatment of Cancer and Allied Diseases, New York City, gave a clinic on Cancer.

New appointments: Dr. Raymond S. Crispell, associate professor of neuropsychiatry, Duke University School of Medicine, and Psychiatrist, Duke Hospital.

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University of Virginia Department of Medicine

The Piedmont Medical Society and the Albermale Medical Society held a joint meeting at the University of Virginia Hospital December 13. The following program was given: "Renal Calculi," by Dr. J. H. Neff; "Tularemia," by Dr. S. D. Blackford; "The Tumor Clinic at the University of Virginia Hospital," by Dr. W. H. Goodwin.

January 8, Dr. J. H. Neff spoke before the Roanoke Academy of Medicine on the subject of "Tumors of the Kidney;" Dr. H. E. Jordan spoke on "Extramedullary Blood Formation."

Dr. E. C. Drash spoke before the Rockingham County Medical Society, meeting in Harrisonburg, January 8, on the subject of "Intrathoracic Neoplasms."

January 13 the Southern Section of the American Laryngological, Rhinological and Otological Society held its annual meeting at the University of Virginia. The program included the following papers by members of the medical faculty: "Allergy as Related to Otolaryngology," Dr. Oscar Swineford; "Roentgen Ray Therapy of Malignant Tumors," Dr. Vincent Archer.

January 8, Dr. J. Edwin Wood spoke before the Campbell County Medical Society, meeting in Lynchburg, on the subject of "Cardiac Emergencies."

Drs. A. D. Hart and J. E. Wood gave a joint paper on "Rheumatic Fever" at the meeting of the Albemarle Medical Society January 11.

At the meeting of the University of Virginia Medical Society held January 15, Dr. Oscar Swineford spoke on the subject of "Serum Sickness;" Dr. William Brumfield spoke on "Transmission of Syphilis."

Dr. John D. Ferrell, assistant director of the International Health Division of the Rockefeller Foundation, visited the medical school January 16.

The thirty-sixth annual session of the Tri-State Medical Association of the Carolinas and Virginia with Graduate Clinics of the University of Virginia Medical Faculty was held at the Medical School on February 12 to 14.

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University of Texas Medical Branch

Because of irregularities during the midyear examination period, Mr. Luke Wm. Able, 4625 Bellaire Ave., Houston, Texas, and Mr. Howard Francis LeBaron, 701 Russell Place, San Antonio, Texas, were suspended for a period of three years, dating from October 1, 1933, and will be required to repeat the entire freshman year on their return to the institution.

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University of Arkansas School of Medicine

The Public Works Administration has approved formally application of the Board of Trustees of the University of Arkansas School of Medicine for an allotment of $500,000 for construction of an administration building at Little Rock.

A site for the building has been obtained and the structure will cover almost the entire block south of the City Hospital. The property, known as the "Bentley estate," includes all the block except the Dr. Carl Bentley home.

The building will face City Park, on the west, and a connection is planned with the hospital. The Medical School has a 25 year contract for operation of the City Hospital.

The new building probably will be completed for the opening of school next fall.

The Isaac Folsom Clinic (outpatient department) will be removed to the new administration building. Last year more than 36,000 persons registered at the clinic for treatment.

The 1931 legislature authorized the sale of bonds for construction of the Medical School building. However, the bonds were never sold, and last summer the application for the public works loan was filed.

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University of Minnesota Medical School

Dr. E. Starr Judd, professor of surgery in the Mayo Foundation, has endowed an annual lectureship in surgery in the university.

The first Judd lecture was delivered by Dr. Dean Lewis, professor of surgery in Johns Hopkins University School of Medicine, on February 13. His subject was "The Hypophysis, the Master Gland."

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Medical College of Virginia

A testimonial dinner was given to Dr. Stuart McGuire by the faculty and board of visitors of the Medical College of Virginia on January 15, 1934, in recognition and appreciation of his forty years continuous service to the institution as professor, president, and now chairman of the executive committee of the Board of Visitors. Addresses were made by a number of members of the board and faculty, one of them by Dr. J. Fulmer Bright, emeritus professor of anatomy, and now mayor of Richmond.

Dr. Frank Charles Mann, professor of experimental surgery, Mayo Foundation, will deliver the Stuart McGuire lectures for the current year on April 2 and 3. His subjects will be "The Anatomy and Physiology of the Liver," and "Experimental Pathology of the Liver."

The Stuart McGuire lectureship, inaugurated during the session 1929-30 in recognition of Dr. McGuire's service as teacher and president of the Medical College of Virginia, has been filled thus far by Dr. William J. Mayo, Rochester, Minnesota; Dr. S. A. Mitchell, University of Virginia; Dr. James S. McLester, University of Alabama medical school, and Dr. Ronald T. Grant, University College Hospital medical school, London.

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University of Oregon School of Medicine

Dr. J. Earl Else, director of the department of surgery, has been named emeritus professor of surgery. His successor is Dr. Thomas M. Joyce.

Dr. Robert C. Coffey, clinical professor of surgery, was killed in an aeroplane accident.

Dr. Howard D. Hoskins, head of the department of biochemistry since 1915, died. His successor has not yet been selected.

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Western Reserve University School of Medicine

Dr. James Angus Doull, head of the Department of Hygiene and Public Health of the School of Medicine of Western Reserve University, Cleveland, has just returned from the Philippine Islands where he spent five months making an epidemiological study for the Leonard Wood Memorial Foundation for the Eradication of Leprosy.

Dr. Duoll made his headquarters at Cebu, one of the islands in the Philippine group, about 400 miles south of Manila which is the focal point for study of leprosy in the Philippines. The Leonard Wood Foundation has a large plant at this point. The project, however, on which he spent most of his time was a census and examination of the inhabitants of the municipality of Cordova, on

the coral island of Mactan, a thirty minute motor boat trip from Cebu.

This work included a house to house census of the social and economic conditions of the inhabitants and a physical examination of practically the entire population, including more than six thousand people.

Dr. Doull found the islanders remarkably cooperative. There was no hint of compulsion in his invitation to them to be examined. He found the incidence rate of leprosy about 16.5 per 1000 population of Mactan.

Dr. Bradley M. Patton, associate professor of histology and embryology, has resigned to take the position of assistant director for medical sciences in the Rockefeller Foundation.

Members of the staff had a surprise luncheon in honor of the sixtieth birthday of Dean Torald Sollmann, February 10.

In memory of the occasion, Dr. Sollmann was given a decorated parchment manuscript in a blue pinseal folder, hand tooled in gold, with the following sentiment, which was composed by Dr. Howard T. Karsner: TO TORALD HERMANN SOLLMANN, Your colleagues have gathered together to felicitate you upon the occasion of your sixtieth birthday, to congratulate you upon the scientific achievements which have given you eminence the world over. Your academic career, begun and continued in Western Reserve University, has brought luster to your name and distinction to the institution, which through many channels, you have served selflessly, faithfully, enthusiastically, energetically, and with inspiring loyalty. With affection, admiration, and respect, we wish you many more years of fruitful investigation and happiness.

It was signed, in order of faculty seniority, by Dr. T. Wingate Todd, Dr. H. J. Gerstenberger, Dr. Howard T. Karsner, Dr William E. Bruner, Dr. Carl J. Wiggers, Dr. Arthur H. Bill, Dr. Victor C. Myers, Dr. Joseph T. Wearn, Dr. James Angus Doull, Major R. B. Bretz, Dr. Carl H. Lenhart, Dr. W. B. Chamberlin, Dr. W. H. Weir, Dr. N. William Ingalls, Dr. Harold N. Cole, Dr. G. E. Harmon, Dr. E. E. Ecker, Dr. Harry Goldblatt, Dr. J. M. Hayman, Dr. Gerald S. Shibley, Dr. A. B. Bruner, Dr. Claude S. Beck, Dr. J. D. Pilcher, Dr. J. A. Toomey, Dr. A. R. Moritz, and Dr. W. M. Krogman.

Born in Coburg, Germany, Dr. Sollman was educated in the Gymnasium there and studied chemistry and pharmacy in Paris. Coming to America he was graduated from the School of Medicine of Western Reserve in 1896. He became at once a member of the teaching staff, on which he has served continuously since, becoming professor of pharmacology in 1904, and became dean in 1928 on the retirement of Dr. Carl A. Hamann. Dr. Sollmann, who is international authority on pharmacology and materia medica, has written a number of books and held offices of the greatest importance in his profession, notably member of the council on pharmacy and chemistry of the American Medical Association, and president of the American Society for Pharmacology and Experimental Therapeutics. In his years at Reserve, besides giving instruction to thousands of medical students, he has trained a number of younger men on his staff, who have since gone to high positions in other institutions.

Personals

Dr. Robert Gordon Sproul, president of the University of California, is this year's recipient of the Benjamin Ide Wheeler medal, awarded biennially by the service clubs of Berkeley on the most distinguished citizen in point of public service. The medal is given without regard to sex, religion, place of birth or occupation. It is open to those who have distinguished themselves in public life, international relations, business, education, art, music, invention or any other field of activity.

Dr. Charles F. Craig, director of the department of tropical medicine, Tulane University of Louisiana School of Medicine, delivered the second Jesse Horton Koessler lecture of the Chicago Institute of Medicine January 26.

Dr. Alfred C. Reed, professor of tropical medicine in the University of California Medical School, has been named consultant in that specialty to the San Francisco Department of Health.

Dr. Earle B. McKinley, dean George Washington University School of Medicine, will deliver one of the De Lamar Lectures in Hygiene at the Johns Hopkins University School of Hygiene and Public Health on March 20. His subject will be "The Etiology of Leprosy."

Charles J. Stucky, Ph.D., formerly a member of the faculty of Yale University, has been appointed professor of biochemistry in Georgetown University School of Medicine.

Dr. Jean R. Oliver, professor of pathology in Long Island College of Medicine, delivered the tenth Ludwig Hektoen lecture of the Frank Billings Foundation, February 23.

Dr. R. Sidney Cunningham, professor of anatomy in Vanderbilt University School of Medicine, delivered the 1934 Benjamin Knox Rachford Foundation lectures in Cincinnati, February 15 and 16.

Dr. Frank R. Lillie, dean of the Division of Biological Sciences, University of Chicago, has been nominated to the Institute of Embryology, Utrecht, Holland.

Dr. Henry S. Houghton, director University of Chicago Clinics, was elected a member at large of the Executive Committee of the Central Council of Nursing Education.

The Southern Medical Association at its annual session in Richmond in November awarded its annual gold medal for notable achievements in research to Dr. William deBerniere MacNider, Kenan research professor of pharmacology, University of North Carolina School of Medicine.

Dr. Robert Q. Patterson has been appointed professor of dermatology at the University of Arkansas School of Medicine, succeeding the late Dr. William R. Bathurst.

Dr. Charles Macfie Campbell, professor of psychiatry in Harvard University Medical School, will deliver the 1934 series of the Thomas W. Salmon Memorial Lectures for the New York Academy of Medicine, April 13, 20 and 27. The topic selected by Dr. Campbell is "Trends in Psychiatry."

The American Association for the Advancement of Science voted its eleventh annual award of $1,000 to Reuben L. Kahn, Sc.D., assistant professor of bacteriology and serology, University of Michigan School of Medicine, for his paper on "Tissue Reactions in Immunity," which presented experimental evidence of a new immunity principle.

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Dr. Elliott C. Cutler, professor of surgery in the Harvard Medical School, has been chosen by the Harvard Alumni Association to act as chief marshall of the commencement exercises of the Association next June.

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Dr. Herbert M. Evans, Morris Herzstein professor of biology in the University of California, delivered the three Morris Herzstein lectures in January and February. His subject was "Internal Secretions of the Anterior Lobe of the Pituitary Body."

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Dr. Rudolph Matas, emeritus professor of surgery in the Tulane University of Louisiana School of Medicine, was recently presented with the medal of the Order of Isabella the Catholic by Spain, and the honorary degree of doctor of medicine and surgery by the University of Guatemala.

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Dr. Walter A. Jessup resigned as president of the State University of Iowa to become president of the Carnegie Foundation for the Advancement of Science. He will assume his new duties May 1, 1934.

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Dr. Charles F. Craig, director of the department of tropical medicine, Tulane University of Louisiana School of Medicine, New Orleans, will give the second Jessie Horton Koessler Lecture of the Institute of Medicine of Chicago, January 26. He will discuss amebic dysentery.

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Dr. Louis B. Wilson, director of the Mayo Foundation of the Graduate School of the University of Minnesota, was elected president of the National Advisory Council to the Examining Boards in Medical and Surgical Specialties which was organized in Chicago in February, 1934.

General News

Proposed Code to Direct Premedical Students and Recommendations to Medical Schools

The following report is the product of a special committee of the faculty of Washington and Jefferson College, Washington, Pennsylvania.

1. That a committee be appointed from the faculty and be recognized as the Pre-Medical Advisory Committee.

2. That the Registrar is to serve as ex-officio member of the Pre-Medical Advisory Committee to advise as to general scholarship.

3. That the Pre-Medical Advisory Committee serve as an advisory council for all premedical students. This committee is to be available for conferences and guidance at registration periods and on or about February 15th.

4. That the Pre-Medical Advisory Committee set up definite requirements in science and the other cultural subjects that will meet standards of the medical school and also of a cultural education. The fulfillment of these requirements will be necessary for a recommendation to medical school by the Pre-Medical Advisory Committee.

5. That the Pre-Medical Advisory Committee draw up a complete Recommendation Reference Form covering the physical, moral, and mental characteristics of each premedical student to serve as the college's recommendation of the premedical student to the medical school of his choice.

6. That the Pre-Medical Advisory Committee draw up a form of Student Rating Card to be submitted to the science departments and to all other departments in which the premedical student has studied.

7. That all premedical students must file their applications to medical schools with the Pre-Medical Advisory Committee before or on February 15 of the year in which they intend to enter medical school. At the same time the premedical student must present a list of medical schools indicated in the order of his preference.

8. That applications to medical schools must include character and scholastic reference from at least two professors, exclusive of the science departments.

9. That the Pre-Medical Advisory Committee be kept advised by the registrar's office of all transcripts that have been sent in to the medical schools by the student.

10. That the medical school advise the Pre-Medical Advisory Committee as soon as applicant has been accepted. That the Pre-Medical Advisory Committee withdraw the other recommendations of that student as soon as they have been advised. A notation to this effect is to appear on the Recommendation Reference Form.

11. In order to make this plan effective, all recommendations must pass through the Pre-Medical Advisory Committee.

12. That the Pre-Medical Advisory Committee should hesitate in recommending students who can not complete the work for the bachelor degree before the fall semester opens in the medical school of their choice.

13. To avoid the drawing of unfavorable comparisons, this special committee urges the formation of a similar advisory committee for the other general curricula, i.e., pre-ministerial, pre-legal, etc.

14. That the various medical schools

be consulted as to the qualifications they endorse and the type of men they are seeking.

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Reform of Medical Education in Great Britain

A conference under the presidency of Lord Dawson, president of the Royal College of Physicians, and medical representatives of the Universities of Oxford, Cambridge and London and of the Royal Colleges of Physicians and Surgeons, has undertaken the task, which has heretofore defied the authorities, of remolding the medical curriculum. They have to consider all the new methods of treatment, such as psychoanalysis, physical medicine and manipulative surgery. In a press interview the president stated that while the conference realizes that students should have the advantage of the new knowledge, it is even more essential that they should be trained to use their intelligence by being given a grounding in the general principles of their profession and not merely a smattering of a great variety of branches.—*J. A. M. A.*, Jan. 13, 1934.

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Rudolph Matas Award

The fund for this award was provided by Mr. Mike S. Hart. It established the Violet Hart Fund which is administered by Tulane University. It provides an award in the form of a medal to be made to the North American surgeon who has done an outstanding work in vascular surgery, as the occasion arises, as determined by a committee of surgeons selected for life by the Hart family with the addition of the incumbent of the chair of surgery in the Tulane University of Louisiana School of Medicine.

The committee is composed of Dr. Emile Bloch, chairman; Dr. Lucien Landry and Dr. Isidore Cohn, with Dr. Alton Ochsner.

Dr. Mont R. Reid, professor of surgery in the University of Cincinnati College of Medicine, is the first recipient of this award.

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Report of Rockefeller Foundation for 1932

This report shows total appropriations of $11,577,064 for projects in medical, social and natural sciences, the humanities and public health.

For public health work, the sum of $2,539,057 was expended. This included support of research on yellow fever in Lagos, Nigeria; Bahia, Brazil, and New York City, and support of an extensive program for control of yellow fever under the direction of the government of Brazil.

Four states and the health administrations of seventeen foreign countries were aided in anti-malaria work; ten foreign governments were assisted in anti-hookworm work. Support was also given studies on tuberculosis, common cold, undulant fever and other diseases.

Funds were provided for the support of 225 fellowships in public health.

In the field of the medical sciences, specific research problems only were supported. Special attention was paid to psychiatry. The total amount appropriated for the year was $3,090,973. The largest appropriation was given to McGill University, $1,282,652, for the establishment of a neurological institute. Many small appropriations were made in support of research in neurology in various countries.

Research projects in medical sciences in a number of medical schools in the United States were also supported, as well as 383 fellowships for training of research workers in the medical sciences.

Book News

Maternal Mortality in New York City

By the New York Academy of Medicine Committee on Public Health Relations. Ransom S. Hooker, M. D., Director of the Study. Published by the Commonwealth Fund, New York. 1933. Price, $2.00.

In 1930 the New York Academy of Medicine set a committee of its Fellows the task of reviewing every puerperal death occurring in New York City. With the financial aid of the Commonwealth Fund and with the technical skill of a group of prominent obstetricians, every maternity death that occurred in New York City during three years, 1930-1932, was investigated within one week of its occurrence. Each case was studied by personal interviews with all individuals concerned: attending physicians, midwives, hospital staff, family.

On the basis of the facts so gathered each case was reviewed by a jury of expert obstetricians and a verdict of "preventable" or "not preventable" was rendered in each instance. Where the verdict was "preventable" the case was further analyzed to determine whose was the fault, and subsequently it was charged to the responsible agent. This procedure not only indicated how many of the maternity deaths reviewed were preventable, but also the sources of failure, their relative magnitudes and where and, in a measure, what kind of remedial efforts are indicated.

Of the 2,041 maternity deaths studied during the three years, the committee found that about two-thirds, 1,343, were preventable. Lack of medical skill and faulty medical judgment, poor hospital administration and incompetent midwifery were found responsible for nearly 65 per cent of the preventable deaths. The others were due to the fact that prospective mothers had not been educated to seek proper medical care or did not cooperate with their physicians.

The volume is of vital interest to every physician, obstetrician, hospital administrative officer, and public health worker, and to all others concerned with public welfare.

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A Manual of Diseases of the Nose, Throat and Ear

By E. B. Gleason, M. D., LL. D., Professor of Otology, Graduate School of Medicine, University of Pennsylvania. 7th Ed. W. B. Saunders Company, Philadelphia, 1933. Price, $4.50.

A good book for the student, of handy size, well written, concise in statements made, many illustrations, and covering the field. Diagnosis, use of the commoner instruments for diagnosis, technic of routine treatments are given careful and comparatively lengthy detailed descriptions. Methods of treatment are simplified. At the end of the book are 35 pages of formulae, with description of the more important drugs, which, no doubt, will be found very useful.

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An Outline of Immunity

By W. W. C. Topley, M. D., Professor of Bacteriology and Immunology in the University of London. William Wood & Company, Baltimore. 1933. Price, $6.

This work provides a very up-to-date single volume covering all branches of that important and constantly expanding field. Bacteriologists, pathologists, research and laboratory workers, teachers of clinical medicine and biology, all who wish to make a serious study of bacteriology and its application to the problems

of infection and resistance will find this new book a valuable authoritative guide text and reference work. Extensive bibliographies are given, including the work published in all countries.

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Metabolic Diseases and Their Treatment

By Erich Grafe, M. D., Professor of Medicine and Director of the Clinic of Medicine and Neurology in the University of Wuerzburg, Germany. Lea and Febiger, Philadelphia. 1933. Price, $6.50.

This work offers a condensed and simplified discussion largely confined to the practical question of treatment. The work opens with a general discussion of metabolism and nutrition covering the physiochemical action of the various foods. After a consideration of the nature and treatment of nutritional disorders, the chief metabolic diseases are treated in detail with particular attention to obesity, habitual undernutrition (Magersucht), diabetes mellitus, diabetes insipidur, gout, alcaptonuria, cystinuria and aminuria. The appendix covers briefly other conditions not properly classified as metabolic diseases but usually associated with them.

Practice is emphasized and theory is introduced only so far as is necessary to the understanding of the nature of the disease and its treatment. Bibliographies at the end of each section afford ready access to the source of the material.

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Red Medicine—Socialized Health in Soviet Russia

By Sir Arthur Newsholme, M. D., and John Adams Kingsbury, LL. D., Secretary of the Milbank Memorial Fund. Doubleday, Doran & Co., Garden City, New York. 1933. Price, $2.50.

The book is the outcome of a trip that covered over 9,000 miles in Russia which was undertaken under the auspices of The Milbank Memorial Fund. The trip led from Moscow and Leningrad through Georgia, the Crimea, the North Caucasus, the Black Sea area, and the Ukraine. The first eleven chapters of the book are concerned with the painting of a general picture of Russian life. The remaining thirteen chapters deal with such subjects as Care of Children; Maternity Cases; Abortions; Social Insurance; Public Health Work; The Training of Doctors; Care of the Sick; Tuberculosis; Venereal Disease; and Health education in large urban areas.

In the concluding chapter the authors say: "Does the Soviet organization—including all that is implied in the unification of financial responsibilities and control of the entire resources of the country—assist to an exceptional extent a complete medical and hygenic service for the entire community? To this question we can at once give a definitely affirmative answer."

The position of the U. S. R. R. as already seen is very special. In some essential particulars it has surpassed all other countries in its socialization of medicine. It has removed the doctor almost entirely from the field of monetary competition, and has thus abolished a chief source of inadequate medical service. It has made a gratuitous (that is, state-paid) medical service of an astonishingly complete character promptly available for the vast majority of urban populations, which is being rapidly extended to rural Russia; and it has given the whole of this service an admirable turn in the direction of social as well as medical preventive measures.

It has constituted a single unit system of medical service for the population, freed from the complications, overlappings, and gaps of western medicine. However, the occurrence of gaps in the service for rural Russia is admitted.

These are great achievements. The new arrangements are far from perfect; but perfection could not be expected after only a dozen years of strenuous organiza-

tion. But other countries may well envy Soviet Russia's elaborately centralized government in this respect, in that it has been able to brush aside all past complexities and to initiate a nearly universal national medical service on unified lines, untrammeled by such complications as exist in western Europe and America.

What Russia has accomplished in its courageously original schemes for the health and social well-being of its people constitutes a challenge to other countries.

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Dietetics for the Clinician

By Milton Arlanden Bridges, associate in medicine at the New York Postgraduate Medical School, Columbia University, in collaboration with Ruth Lothrop Gallup, dietitian. Lea & Febiger, Philadelphia. 1933. Price, $6.50.

The author has reviewed the entire literature of the field at large and has produced an assimilation of the various dietetic tables. The material offered is not only physiologically sound and essentially practical, but has been adjusted to the physician and his patient.

The diets offered are designed for practical use rather than to fill a gap in the formula for treatment.

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Man and Medicine

An introduction to medical knowledge. By Henry E. Sigerist, professor of the History of Medicine in Johns Hopkins University. W. W. Norton & Company, New York. 1932. Price, $4.

This is a translation of the original German edition published a year ago. It is intended to acquaint young people who have chosen to enter medicine with the nature of their studies and their future profession. The author has had recourse to history as a means of presenting the basic facts. The whole structure of medicine is presented in the frame of general culture. The book begins with the observer's point of view, discussing the content of his experience, and pictures in broad outline the problems and the duties of the student during his course of study and of the physician in his practice. The work should prove of great value to the student entering on his course of medical study.

The seven chapters deal, first, with man, his structure, function, mind and spirit; the sick man; the signs of disease, disease, causes of disease, medical aid and, lastly, the physician.

The mechanical part of the book is deserving of special commendation. The dull finish paper, the remarkably clear type and wide spacing of the lines make it a pleasure to read the text.

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Journal of Urusvati, Himalayan Research Institute.

Volume III. Published by the Urusvati Himalayan Research Institute of Roerich Museum, New York. 1933.

This publication is dedicated to Dr. Sven Hedin, the great explorer of Central Asia. It presents records of many scientific expeditions made into Asia and India, such as the Cosmic Ray Expedition to South-Eastern Ladakh, an account of a journey to the Gangotri glacier, recent archaeological discoveries in India, and a very good discussion of the rôle of the skin in the preservation of health. Ancient people and asiatic languages are discussed in several papers. The publications of this Institute are always most interesting and informative, especially to anthropologists, philologists and historians and those who are just naturally interested in man and his origin and works.

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Textbook of Physiology

By Wm. H. Howell, M. D., Emeritus Professor of Physiology in Johns Hopkins University. 12th Ed. W. B. Saunders Company, Philadelphia. 1933. Price, $7.

This well known and widely used book does not require critical comment.